TEACHING STRATEGIES USED WITH A BLIND STUDENT IN A BILINGUAL BACHELOR PROGRAM AT UNIVERSIDAD TECNOLÓGICA DE PEREIRA

EDILBERTO ARBOLEDA TABORDA

LEIDY JOHANNA BEDOYA GIRALDO

MARÍA FERNANDA BALLÉN URREA

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Trabajo de grado presentado como requisito para obtener el título de

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Asesora: Isabel Cristina Sánchez

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Acknowledgments

In the way of becoming English teachers we sorted out many challenges, and overcoming those challenges could not be possible without the support of our families in every step.

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Abstract

It was found that there is not enough information, teachers training, material, publications, bilingual plans, or research to guide the learning process of blind students in bilingual contexts. That is the reason why professors have had to create by their own teaching strategies on a constant trial and error process.

This qualitative case study worried about the lack of importance that is given to blind population in educational fields. Thus, the aim of this project was to find teaching strategies to include a blind student in regular classrooms in a bilingual program.

This research project took place at Universidad Tecnológica de Pereira with a group of four professors selected by non-probability sampling due to the qualitative focus of the present study. Additionally, the student-participant of the Licenciatura en Blingüismo con Énfasis en Inglés program was chosen by convenience sampling since he was the only blind student in the program. The data was collected through stimulated recall as the instrument; and observations, interviews, and memos as techniques. Finally, the data analysis revealed that the four professors did implement teaching strategies that are effective for the blind student. Those strategies are divided into two main categories: Ways to present material and content to the blind student in the classroom and ways in which the student expresses his knowledge. Some examples are verbalization, contextualization, and explanation of material and content as a strategy; and providing different ways of doing tasks as a strategy.

Resumen

Se encontró que no hay suficiente información, entrenamiento para profesores, materiales, publicaciones, planes de bilingüismo o investigaciones que guíen el proceso de aprendizaje de estudiantes ciegos en contextos bilingües. Esta es la razón por la cual los profesores han tenido que crear sus propias estrategias de enseñanza en un proceso constante de ensayo y error.

Este estudio de caso cualitativo se preocupó por la falta de importancia que se le ha asignado a la población ciega en el campo educativo. Por esto, el objetivo de este proyecto fue encontrar estrategias de enseñanza para incluir al participante ciego en aulas de clase regulares de un programa bilingüe.

Este proyecto se llevó a cabo en la Universidad Tecnológica de Pereira con un grupo de cuatro profesores seleccionados por medio del muestreo no probabilístico debido al enfoque cualitativo del presente estudio. Adicionalmente, el estudiante ciego de la Licenciatura en Bilingüismo con Énfasis en Inglés fue escogido a través del muestreo por conveniencia debido a que él era el único estudiante ciego de este programa.

Los datos fueron recolectados a través del recuerdo estimulado como instrumento principal; y observaciones, entrevistas y memos como técnicas de este instrumento. Finalmente, el análisis de los datos reveló que los cuatro profesores sí implementaron estrategias de enseñanza que fueron efectivas con el estudiante ciego. Estas estrategias fueron divididas en dos categorías principales: Las maneras en que se presenta el material y el contenido al estudiante ciego en el salón, y Las maneras en que el estudiante expresa su conocimiento. Algunos ejemplos son: Verbalización, contextualización y explicación del material y contenido como

estrategia y proveerle al estudiante diferentes maneras de hacer tareas como estrategia.

1. Statement of the Problem

According to *El Ministerio de Salud y Protección Nacional* (2018), the word "disability" is the result of the interaction between the people with different deficiencies and the barriers regarding the attitudinal and environmental aspects. This interaction restricts people to participate fully and effectively in society; it also contributes in a negative way to inequality of conditions with the others. In connection with visual disability, the one that this project is concerned with, the Dirección Especial de Educación Especial (2018) affirms that blindness is a condition that totally affects the perception of images and prevents people from receiving information of the environment.

Although inclusion is an important term, it has been introduced for many years without being completely accomplished in educational contexts. To start recognizing this important aspect in academic fields, Quintanilla (2014) states that inclusive education should grant that all the population achieves scholarization; in addition, it should enhance the population's educational and life skills not only for having a good development in the classroom, but also for facing real life and social situations.

After a long time trying to include the blind people into the educational field, it was possible just until 1784, when Valentin Hauy implemented the first school in Paris specialized in this population. With the emergence of this new school, Louis Braille, modified the current alphabet in that time and made the necessary adaptations by including a raised-dot code that enable blind and visually impaired people to read and write. This alphabet, as a result, was institutionalized in 1969 as the official communicative method for the blind people. Although some people started working for the inclusion of blind or visually impaired people in the education years ago, there is still a huge amount of work to do regarding this minority; even in

this era, researchers continue searching and expanding horizons.

To make a contextualization, during the last 4 years, inclusion has been a term integrated by different territorial entities. In Colombia, census data in 2005 reported 392.084 children with special needs which 270.593 attended to the school and the other 119.831 did not. Since 2003 until 2006 the secretaries reported 81.757 students with disabilities enrolled in 4.369 schools. According to the census data results, the necessity of continuing working to achieve the plan of having everybody attending to school, was evidenced.

That is why, the *Ministerio de Educación Nacional* (2007), implemented a policy (*Revolución Educativa*) that is interested in the education of vulnerable population and those with special needs. For being an inclusive society and for achieving an inclusive education, it is necessary for the institutions to modify and transform their culture and their components. In other words, they need to start building curriculums and plans that fill the needs of all the students and to change in terms of management; it means, transforming and innovating in the administrative and academic field in all the schools. To achieve this important purpose, it is crucial to involve teachers, parents and the community in general.

As it is known, a policy is a set of decisions that are projected in long term while a law is a system of rules that people in general (companies, public figures, organizations, institutions, etc.) must obey.

Therefore, although the policy Revolución Educativa was a significant advance, it was crucial to continue working with this minority. For this reason, Law 1618 of 27th of February, 2013 was made in order to ensure and respect the rights of the national blind population through some inclusion policies. In the field of education, this law together with the *Ministerio de Educación Nacional* seeks for the integration of the people with any disability in the educational

domain as all the human beings do in the following aspects: Guaranteeing an integral education for the pupils, fostering an inclusive education and environment among the educational community, seeking for a better and adequate mobility in the educational institutions, creating training programs for all the teachers in order for them to be prepared in the case they face a pedagogical situation with a blind student, and keeping track of the process that blind students are carrying out.

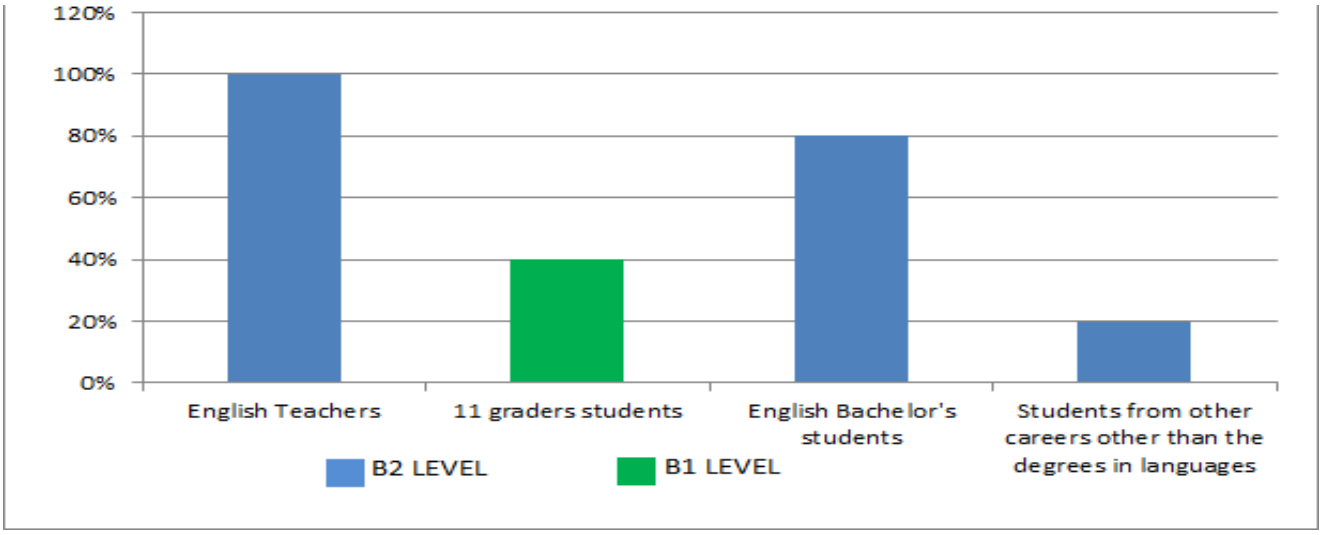
Furthermore, the current decree 1421 of 29th of August, 2017 issued by the presidency of the republic, regulate in the framework of inclusive education, the educational attention to the population with disabilities and the provision of the elements for the people with special needs to succeed in the field of education and society. This process have been planned to be implemented through the use of Planes Individuales de Ajustes Razonables (PIAR) which are focused on the particular necessities of each individual and provides the students with the opportunity of having a bilingual instruction of the sign language as the second language. Every governmental institution need to guarantee access, permanence and quality in the public schooling to this community from kindergarten to higher education within the core of equity.

It is important to mention that there are bilingual plans, diagnostic reports, and studies about how to teach English, but there are not concrete actions that include people with disabilities in this specific field. Some of those plans will be explained in the next paragraph.

With the emergence of these policies and the analysis of the students' and the teachers' proficiency level of English language in Colombia, which was lower than expected, the different administrative entities decided to create educational strategies. As a result, the *Ministerio de Educación Nacional* decided to implement a program whose focus is on providing an appropriate training for teachers in order to enhance their level as well as the level of students. The National

Program of Bilingualism (NPB) created by the *Ministerio de Educación Nacional*, was the first plan of bilingualism in Colombia which was set from 2004 to 2019. The main objective of this program was the creation of citizens capable of communicating in English with similar international standards and to set in the country into universal communicational processes, the global economy, and the cultural opening. Among its main objectives, the NPB is focused on getting, from 2019 on, undergraduate students from high school with an intermediate level, (B1 according to the Basic Standards of Foreign Language: English). Equally, from the same year on, it is expected that all English teachers hold an upper-intermediate level (B2 according to the Basic Standards of Foreign Language: English). To keep improving the process of English language teaching, the *Ministerio de Educación Nacional* carried out a project, from 2010 to 2014, called Project to Strengthen the Development of Competences in Foreign languages. The aim of this project was "to develop communicative skills in foreign languages, particularly English, in educators and students of the official sector to favor the insertion of Colombian human capital into the knowledge economy and a globalized labor market" (*Ministerio de Educación Nacional*, 2010). This project set up the goals for the estimated time 2010-2014, in which is consider the improvement of the results of both, the pre-school basic and media education cycle, and the higher education cycle.

Graphic N°1: Goals for the Project to Strengthen the Development of Competences in Foreign Languages 2010 - 2014



Graphic 1 1

Graphic 1 Goals for the Project to Strengthen Development of Competence in Foreign Languages 2010-2014

As it is expressed in the graphic above, the goals for the project during 2010 and 2014 were to have 100% of the English teachers at least with a B2 level in the foreign language, the 40% of the 11 graders students with a B1 level, the 80% of the English bachelor's students to have a B2 level, and the 20% of the students from others careers other than the degrees in languages with a B2 level.

Finally, the *Ministerio de Educación Nacional* in accordance with the results of the Project to Strengthen the Development of Competencies in Foreign languages (2010 - 2014), developed an English National Program called Colombia Very well!, established from 2015 to 2025. The importance of this new program relies on the fact that it was created based on the needs previously identified from different sectors and it has the support of diverse entities of the Colombian state such as, the *Presidencia de la República, el Departamento Nacional de Planeación (DNP), el Servicio Nacional de Aprendizaje (SENA), el Ministerio de Comercio,*

Industria y Turismo, el Instituto Colombiano para el Fomento de la Educación Superior (ICFES) y el Consejo Privado de Competitividad. This final project is the consolidation of the previous initiatives as a state policy, which is a long term, integral and intersectional program.

In Risaralda, the Governor Carlos Alberto Botero (2012 - 2015) promoted the project "Fortalecimiento del Bilingüismo en Risaralda" in which 12 municipalities without certification were the protagonists. The project was based on the necessities of each municipality and the urgency to low levels of competitiveness in each region- 680 students of public schools were involved by participating in the Complementary School Day Program with emphasis in English with an agreement with the Centro Colombo Americano in a 2 years learning process. The project counted with 24 English-native-speakers volunteers. Additionally, the project contemplated the training of 18 teachers who could participate in English Master's degree programs, as well as 300 teachers that would be included in programs where they would work with English learning, pedagogy, and the use of technology. Nowadays, the governor Sigifredo Salazar continues supporting this project and continues looking for options to improve.

From the aforesaid, it is evident that although there are policies that are in charge of teaching to blind people, and that there are also policies to teach English as a foreign language in Colombia, there are no established public policies to teach English as a foreign language to a population with visual disabilities in our country.

According to a Colombian newspaper *El País* (2013), there are 1'.143.992 cases of blind people at a national level (which represent the 43,5% of the total amount of people with disabilities). This big number of people needs to be supported under policies that guarantee inclusive education. Even though the Instituto Nacional para Ciegos (INCI) has implemented some inclusive programs for the blind people in the general educational field, there are no

specific policies that focus on teaching English. To support the previous information, a research case study made in 2016 at the Universidad Tecnológica de Pereira confirms the assertion above mentioned when Restrepo, Vargas, and Vargas (2016) expressed the importance of creating awareness about the lack of inclusive education for teaching English. However, this study focuses more on how the infrastructure of the university is not adapted for the blind students rather than on their education in general and in specific (English).

In the study by Restrepo, Vargas, and Vargas (2016), they found out in their study a lack of formal training to professors at the university level to face a classroom with a blind student. The authors claimed that the professors are not even informed in advance about the presence of the blind student; the implemented by the educators is to make an effort creating new strategies for teaching to the student with disabilities according to their experience with the student in class.

According to the problematic situation present in Colombia concerning the lack of documents that establish the parameters for teaching English to students with disabilities and the lack of formal training to teachers, it is necessary to develop research projects that shed light on how teachers should guide students with special needs. This project emerged due to the fact that this issue is affecting a considerable amount of population in Colombia.

The purpose of this case study is to determine and describe the strategies that the professors of the Licenciatura en Bilingüismo con Énfasis en Inglés at Universidad Tecnológica de Pereira implement with the blind student who is currently in 5th semester; as a byproduct, it is intended to determine if the strategies implemented may be considered inclusive strategies. The study also intends to raise awareness on pre-service teachers, the managers of the program, and the University administrators about the urgent necessity to develop an inclusive education

(different and diverse students learning side by side in the same classroom) inasmuch as teachers must be prepared to face a class with students that have special needs. Furthermore, at the end of the project, the researchers expect to have a detailed set of useful strategies, for learners and teachers, to teach English to blind students in an inclusive manner, and with inclusive procedures.

Now that we have identified policies for people with disabilities and national plans of bilingualism to teach English as foreign language, and that we have visualized a current problem regarding the implementation of bilingual plans to blind people, it is important to mention some authors that support our arguments by defining the main concepts that guide this process.

1.1 Research Question

What are the strategies implemented by four professors in a Licenciatura program in regards to the inclusion of a blind student from sixth semester in their classes?

1.1.1 Sub Questions

- How effective are the different strategies implemented by the Licenciatura professors with the blind student?
- What are the perceptions that four professors and the blind student have towards the different strategies implemented in different classes they guide?
- What is the impact that the implementation of the strategies has on pre-service teachers, the managers of the program, and the University administrators regarding inclusive education?

1.2 Objectives

1.2.1 General Objective: To determine, analyze, and describe the strategies, if there are any, that four professors of the Licenciatura en Bilingüismo con Énfasis en Inglés at Universidad Tecnológica de Pereira implement with the blind student who is currently in 6th semester.

1.2.2 Specific Objectives:

- To identify the effectiveness of different inclusive strategies, if there are any, used by the four professors of the program during the classes regarding the blind student.
- To report the different perceptions that four professors and the blind student have towards the implementation of the strategies used in classes.
- To report the impact that the implementation of inclusive strategies have on pre-service teachers, professors and managers of the program Licenciatura en Bilingüismo con Énfasis en Inglés, and on the blind students and administrators of the university.

2. Theoretical Framework

2.1 Literature Review

There is an urgent need to research adequate pedagogical inclusion practices for the blind student of the Licenciatura en Bilingüismo con Énfasis en Inglés program. This is the reason why we have directed the revision of the literature towards four main projects that can give us a wide perspectives on previous academic experiences in teaching blind students. The first study took place in South Africa where there were two types of separate education: education with current classrooms and education for students with special needs. In 2006 after the government decided to unify both types of education, Nwacoye (2007) conducted a study that researched about how much six South African teachers know about inclusive education and strategies. In one additional study carried out by Morrow (1999), he describes strategies used with five blind students by foreign language teachers to achieve educational purposes in regular classroom settings. The third study, developed by Medina and Huertas (2008), also describes and analyses interviews with professors and specialists that had taught French as a foreign language to blind students at Universidad del Valle, Colombia. Last but not least, Restrepo, Vargas, and Vargas (2016) is concerned about university policies regarding the infrastructure and needs of blind students; it was developed in a teacher-training program at a public university with one blind student.

As was briefly mentioned before, Nwacoye (2007) executed a study where there were not indicators of experience about working with inclusive education due to their context circumstances. Due to the absence of adequately trained teachers regarding suitable classroom management techniques for inclusive education, this study sought to provide some guidelines for getting over the obstacles which learners are exposure to in learning. Additionally, this study also aimed to examine “how educators manage inclusive education, what competencies do educators

need to manage inclusive education, and what obstacles do educators encounter in managing inclusive education" (Nwacoye, 2007, p. 4). The study was conducted with two grades of fifth and six educators at Maloka Primary School in South Africa in 2007 by Gladness Nwacoye Mpya when the government, one year before, decided to unify the two existing systems of education. Education in this context was divided into a regular system, which addressed to the students without any disability, and a special school exclusively directed to students with special needs. This new system wanted to be conscious of the knowledge teachers have about the management of inclusive classes and the skills needed to approach it. The data was collected by means of observations, documents, focused group interviews, and interviews. The data analysis was made by recording audios form the interviews, then transcribing them, and taking notes as well. Moreover, the researcher listened to the audiotapes and read the transcripts repeatedly for deep analysis. The data was coded; these coding was used for identifying key aspects relevant to the questions of the interviews. Then, the coded aspects were grouped into themes; and categories and subcategories started to emerge.

After all the process above explained, the researcher found that teachers (participants) do not have a clear understanding of what inclusive education is. It was also found that some teachers supported the idea of admitting students with obstacles for learning in regular classrooms; besides, teachers also stated that inclusive education fosters learning for all students no matter their disabilities so they can be educated in the same classroom with other learners of their age (Nwacoye, 2007, p. 69). Furthermore, the researcher found that teachers needed training regarding managing of inclusive classes; they also felt insecure about implementing inclusive strategies due to the lack of understanding about the components an inclusive education has. This study also discovered that parents played a relatively important role on the grounds that

they needed to be aware about what inclusion is and also that teachers need to know not only about improving their inclusive skills, knowledge, and attitude towards this new system, but also to reformulate their performance in the classroom. A relevant finding was that teachers had to change their teaching methods to start implementing an inclusive education; and they stated that it was not easy at all since they still lack of experience and training to overcome the new challenges. Finally, the researcher found that the use of strategies such as co-operative learning, individualization, peer tutoring and group methods were useful and valuable even though they were not totally trained on their usage. These strategies, however, were key aspects for teachers that attempt for an inclusive education.

Beyond examining the teacher's training level to afford blind students, Morrow (1999) stated in her study the advantages and restrictions that blind students face when learning a foreign language in ordinary classroom settings as well as the teaching and learning strategies that were implemented to deal with the challenges founded. This qualitative case study was carried out in United States with five secondary and post-secondary blind students, the five blind students' foreign language teachers, and the three student's teachers of the visually impaired or "vision teacher". The three groups of participants attended to an interview specifically designed for each party in order to identify the different strategies that both professors and students implemented to overcome the teaching of foreign languages to blind students. The interviews were taped recorded and thereafter transcribed to proceed with its analysis.

From the analysis of the interviews, three branches of findings were exposed under a set of categories that were interpreted by the point of view of each of the three groups of participants. These categories were "access to alternate media, such as braille, audiotape, computers or other types of adaptive technology for reading and writing; communication with

teachers; study habits as affected by blindness; social skills in the regular classroom setting; assertiveness and self-advocacy; attitudes of school or college administrators regarding students' blindness, including support services for students with disabilities." (Morrow, 1999, p. 142- 143)

In the findings associated with the students, the participants assure that the areas aforementioned were essential for promoting an adequate environment for the learners facing blindness challenges. One of the most remarkable aspect is the use of braille; this system allowed the five participants to be in a learning position similar to their visual classmates. Even though some of the participants were benefited with more technological devices for the use of braille, all of them had access to this mean of communication. Another aspect to highlight is the social interaction between their classmates and their teachers which represented a barrier for most of them. On the other hand, one of the advantages that the students remarked was the fact that being without the visual referent, allowed them to enhance their auditory ability when learning a foreign language.

The findings regarding the group of the students' foreign language teachers were separated in areas as well. In relation with the accessibility to alternative media, four professors emphasized in the additional changes and amount of time they had to invest in order to prepare and plan their lessons for covering the prerequisites of the blind students since they had to send the materials in advanced to the student participants for it to be transcribed into braille. Another factor the language teachers had into account was the use of the vision teacher as a support for specific activities in which the students needed adaptation of didactic materials at the moment. Moreover, the language teachers were aware of the relevance of two aspects, the description of visual content played in their lessons to provide equal opportunities for the class in general; and the implementation of teamwork to enable the blind students to participate during the activities

or tasks. In connection with “Assertiveness and self-advocacy” the fact that the blind students were assertive in advocating their own needs during the lessons was highlighted.

In addition, when talking about the study habits of the students, different points of view were considered by the teachers. Some of them argued that two blind students act under the pretext of their blindness as uninterested in educational matters; other teachers exposed their admiration for the perseverance of the other student participants. The language teachers also expressed the idea that the majority of the blind students’ classmates showed discomfort and rejection when facing social interaction with them. Lastly, as it was expressed by the students in the first finding, the Teachers did not see the blindness as a wall for the learning of a foreign language. On the contrary, they all agreed that the enhancement of the auditory channel was a good advantage for the students.

The findings in relation with the vision teachers shared same perceptions with the students’ foreign language teachers in the areas of “Access to alternate media”, “assertiveness and self-advocacy”, and “student study habits”. On the other hand, in the “Written communication” of the student participants, the vision teachers expressed that the adaptive devices used by the school to translate materials from braille into print and vice versa did not accommodate special foreign characters. Due to this drawback, the blindness professionals had to invest several hours making this translation for the foreign language teachers to grade it. However, one “vision teacher installed a special program into her blind student's braille note taking device that allowed the student to print out properly-accented Spanish homework assignments and exams for her regular classroom teacher” (Morrow, 1999, p. 164).

On the other hand, Medina and Huertas (2008) carried out a study that was concerned about four different teaching experiences with three blind students in the program *Lenguas*

Extranjeras at *Universidad del Valle*. It is a description and analysis of different interviews with professors and specialists that had worked with these students. At the end of the study, the authors gave their conclusions as pedagogical proposals to include more blind students in foreign current classes, in this case, French. As the professors involved in the process with the blind students had not experience working with students with special needs, they started talking with the blind students about their pedagogical relation with other professors, and also to explore other professor's views to find solutions.

They also implemented different methodologies to work with the students. The first one was about adapting and elaborating material for the blind students. Another interesting methodology that a professor applied was making a dynamic of awareness with all the students that were in the French course. It consisted of binding up some students during the classroom and asking them to do the normal exercises in that way. A different methodology used by one professor was learning Braille. In this way, the professor could promote students' individuality since they could present their exams by their own and participate in reading activities during the classes.

At the end of the study, the authors that were at the same time the professors involved in the process found 3 important aspects:

1. It is expected for the blind students to discriminate and select better the sounds in a foreign language, but the reality is that they have also problems to differentiate the phonemes as sighted students.

2. Almost all the university professors did not ask experts or themselves about blind students' needs.

3. Sighted students expressed in different interviews that they perceived that blind

students were not evaluated in the same way as them and the demand was minor. The excerpt above, promotes the devaluation of blind students capacities.

Taking into account that the most important objective of our project is to describe and analyze sequential and adequate strategies of inclusion used by four professors inside the classrooms of the Licenciatura en Bilingüismo con Énfasis en Inglés program, these three articles provide helpful information to our research project in the sense that Restrepo et al., 2016 provide the specific needs that must be fulfilled in order to positively influence the learning process of a blind student. Morrow (1999) reported the difficulties that blind people face when learning a foreign language and strategies to achieve the learning/teaching processes requested by the necessities of the students. The three groups of participants involved in the project agreed that the use of appropriate adaptive technology such as braille and audiotape, the ability of social and academic interaction of each student, and the support of the teachers, have a big impact in their language learning process, showing that the students supported by one of these factors or by all of them, were the most successful ones. Medina and Huertas (2008) propose pedagogical strategies and methodologies to include more blind students in current foreign language classrooms. Additionally, they add important unexpected findings as the lack of interest in the professors to work with blind students, and the devaluation of blind students' capacities. Finally, Nwacoye (2007) shows us how to start with inclusive education when there is no experience and knowledge at all. To become a society with equal educational rights, people have looked for approaches to shorten the boundaries of cultural diversity.

2.2 Conceptual Framework

It is important for this project to have different perspectives of different authors about key aspects such as bilingualism and inclusion. Bilingual education is defined by Baker (2001) as the

ability to use more than one language, and Bloomfield (1935) considers only native-like control of both languages (as cited in García and Beardsmore 2009). Inclusion is defined by Fundación Hineni (2001), The *Ministerio de Educación Nacional* (2017), and UNESCO (2017). They agree by stating that inclusion is the answer to diversity in our society where all people can learn together no matter their social, personal, and cultural conditions. At the end of each concept, researchers will give their own thoughts based on the authors above mentioned.

2.2.1 Bilingualism. Bilingualism is a term of relevance for our project given the fact that it will be implemented in a bilingual bachelor program. However, bilingualism is a concept not yet been defined due to many different meanings given by many authors along the time. Bloomfield (1935) considers only native-like control of both languages in contrast to Baker (2001), who more recently defined it as the ability to use more than one language (as cited in García and Beardsmore 2009). These two authors claimed different meanings for bilingualism. Baker (2001) argued that Bloomfield's affirmation is maximalist since his definition is ambiguous when he mentioned 'native-like' and 'control' without giving specific definitions for each. Newly, Heller (2007) goes beyond these definitions by saying that bilingualism is the coexistence of two languages. The above definitions give us a wider perspective of what bilingualism is; consequently, this project defines bilingualism as the synchronization of two languages existing in the same context.

Theories about bilingualism also provide types of bilingual education theoretical frameworks as well as types of bilingual people which are divided into three general categories: The bilingualism according to the manner of acquisition/learning process, to fluency and proficiency developmental balance, and the age of acquisition. The first category is divided into three different branches: Subordinate, co-ordinate, and compound bilingualism. In connection

with the subordinate bilingualism, the speaker access the target language by means of the mother tongue, usually, using the translation methods to convey messages in the foreign or second language; for the co- ordinate bilingualism, the speaker become an user of both, the target language and the mother language, in separate and different settings where each language is spoken. This leads two distinct conceptual schemes which may be used for similar or different functions. The last branch is the Compound bilingualism, in which the speaker, different from the co- ordinate bilingualism, learnt/acquired the target language in the same setting or context. Therefore, they count with one conceptual scheme and two detached linguistic codes. The previous explanation pigeonhole the storage and conceptualization of languages according to the way of acquisition/learning. Besides, the following section discriminates the term bilingualism based on the correlation between fluency and proficiency of both the second/foreign language and the mother tongue.

The bilingualism according to fluency and proficiency developmental balance is divided into balanced and dominant. The first term is referring to someone that is able to use two languages with the same proficiency and mastery. The second type of bilingualism is about the difference in terms of proficiency level of two languages, in which one language is better developed than the other. It is important to mention that there are other factors that can influence the process of learning a language, one of them is the age in which the bilingual process starts.

According to the age of acquisition, bilingualism has been classified into two types: early bilingualism and late bilingualism (Beardsmore, 1986). An early bilingual refers to the one who acquires two languages before the age of 8 years (Beardsmore, 1986); thereby, this kind of people seems to have a native-like control of both languages. Late bilingual refers to the person who is exposed to a second language after the pre-adolescent stage of life. This means that s/he

may not be considered a native-like user of the L2.

Additionally, it can be found two different bilingual ideologies: Monoglossic and Heteroglossic. In the first bilingual ideology, the bilingualism is taken into account as double monolingualism. It means, giving value of each of the languages depending on standards and policies. It is common where two language communities are in the same language environment. Depending on the cases, there is a framework that could be applied: Subtractive framework and Additive framework.

The Subtractive framework has as a main objective the monoculturalism. Shifting from L1 to the L2 is a common factor and that is the reason why it conceives bilingualism as a problematic aspect. Different from the framework afore said, the objective of the additive bilingual education is to use the target language as a source of enrichment. That is to say, that the second or foreign language is seem as an additional tool for expanding the knowledge of the student in both language and culture.

The Heteroglossic ideology deals with the complexity and parameters of the multicultural and multilingual communities. This ideology supports the idea of ensuring a global and pertinent education. This means that bilingualism is supposed to be a right allowing culture and language to coexist in an exchangeable environment.

Taking into account all the information previously exposed, and given the fact that this is a case study, this project also seeks to determine what type of bilingual the subject is. The blind student belongs to an additive monoglossic theoretical framework due to this type focuses on "Fishman and Hornberger's maintenance and enrichment models" (García and Beardsmore, 2009), as well as the monoglossic orientation that seeks to develop students' bilingualism in

accordance to two monolingual standards (García and Beardsmore, 2009). This all means that a student goes to the school speaking only one language and the school provides another one. The student, as a result, ends speaking the two languages; L1+L2 = L1+L2 Garcia (2009)

According to the manner of acquisition/learning, the blind student is also a co-ordinate bilingual on the grounds that he learnt the second language in a different context where the language is not the official one. Thus, he uses the two languages in different contexts and for different purposes, Weinreich (1953). Furthermore, According to the age of acquisition/learning, the blind student is a late bilingual for he learnt the second language after the preadolescent phase of life, exactly at the age of 51 years. Thereby, he may be considered as non-native user of the L2, (Beardsmore, 1986).

2.2.1.1 The ways of approaching foreign language teaching in Colombia. Focalizing teaching a foreign language in the Colombian context is mandatory in order to centralize our case study in the setting in which it will be carried out. This affirmation allow us to know that nowadays many local institutions have restructured their curriculums to start applying courses based on the foreign language teaching, and the demands are increasing fast.

The *Ministerio de Educaciòn Nacional* (2015) illustrates that the Bilingual program in Colombia is working with projects in higher education primarily in the succeeding lines of action. First, with the strengthening of undergraduate programs in languages / English, in which the main objective is to create a net of collaboration between the allied universities to promote the constant improvement to achieve the Standards recognized by the Certificate of High Quality. Second, with the professional development program for teachers of English in the official sector that is in charge of promoting the development of models in methodology and language. This program is conducted by the IES (Instituciones de Educación Superior) and

offered to Basic education English teachers. Finally, with a diagnosis of language level and professional development program in English for technical and technological training institutes teachers. It is about making a diagnosis in teachers of technical and technological institutions about their communicative competences level.

In a similar way, McDougald (2009) remarks the increase of bilingual courses in Colombia mostly based on the English language. He considers what learners are able to perform with the new language and that has been named as Content and Language Integrated Learning (CLIL) as an approach for teaching English as a foreign language in Colombia, in its majority, in private institutions and universities in which the main aim is to use English for teaching the subjects of the institutional curriculum. In addition, the *Ministerio de Educación Nacional* (2004 - 2019) created the *Programa Nacional de Bilingüismo,* and with it many tools to improve bilingualism in the national territory such as *Immersion Camps* in Colombia and overseas. For Example in 2016, a lot of students attended different immersion camps where English was the official language; they were motivated to practice all the skills. There are also programs like *Teach me, Teaching English,* and *Native Professors* which pursuits a better educational quality. The *Ministerio de Educación Nacional* has also created guides to guarantee a high quality for teaching English as a foreign language such as the *Basic Learning Rights and curriculum*, the *Basic Standards of competencies in foreign languages: English*; some textbooks such as *Bunny Bonita*, *English Please*, and the *English Kit* with the purpose of promote learning in students. Nonetheless, Amador-Watson, C. (cited by Linares, 2011) argued that it is impossible to talk about bilingualism since we have not created the need to communicate in a foreign language, in this case English. She also posited that an archaic teaching methodology is still used for many public institutions, and that a lot of teachers are not prepare enough to teach within a

communicative approach.

For this project, it is of relevance the fact that different programs have been implemented to teach a foreign language in Colombia, and it is also important to consider the programs in development. It is not only urgent to contextualize what teaching a foreign language is and how it has been approached, but also there is a vital need to understand what is inclusion and the relevance it holds when teaching a blind student.

2.2.2 Inclusion. In a world where diversity represents a challenge, inclusion appears to be the solution to have equal opportunities in our society. According to UNESCO (2017), inclusion is a process that embraces the necessities that all students present in learning, cultural, and community contexts. As the system is responsible of educating all the children, it is necessary to apply changes and modifications in approaches, structures and strategies with a common vision that benefit all the students. Similar to UNESCO (2017), The Ministerio de Educación Nacional (2017), complements this definition by stating that inclusion is the implementation of teaching strategies that are flexible and innovating, and those strategies are able to recognize different styles and capacities in all the students. Finally, rescuing significant terms described above, Fundación Hineni (2001) defines inclusion as the equal opportunities for all the children to learn together independently of their personal, social and cultural conditions. It is about a model in which it does not exist a selection or discrimination of any type. According to the definitions previously provided, this project defines inclusion as the answers to the diversity and necessities that all students present in their scholar life. It is a space where all the people can learn together independently about their social, personal and cultural conditions. This term allows to a type of education where there are not requirements to access and it implies changes in structures, strategies and approaches. To deeply understand and use inclusion correctly, it is

essential to give an important role to the policies which are the ones that support the educational issue by structuring the legal foundations.

2.2.2.1 Inclusion Policies. Inclusion policies is a decisive concept that determines the implementation of inclusion in academic settings. There are certain entities as well as some authors that define it focusing on the Colombian context. According to the *Ministerio de Educación Nacional* (2007) inclusion policies look for an equal education for all the learners without taking into account if they have any disability and also considering that all of them are endowed with the same characteristics and skills for learning even though they demand more time or different techniques. In the same way, the *Ministerio de Salud* (2018) with the national inclusive policy agree with the *Ministerio de Educación Nacional* in the sense that education has to guarantee a qualitative education for all the students. Moreover, this policy establishes to include the rights of the learners with any impairment and the rights of their relatives, making an emphasis to the particular necessities that each region or territory has. Lastly, Vásquez (2015) similarly wants to assure and reinforce the educational field for all the population no matter their differences. However, her focal point is to think about a unified institutional education rather than an institution just for people with special needs. Based on the aforementioned definitions, this project defines inclusive policies as the ones that deal with the purpose of integrating people with any disability in the classroom, guaranteeing a good quality in education and having in mind that all of them have skills to develop in the educational and social environment as any other person usually does. In addition, the institutions have to ensure the support needed in order for them to achieve the educational and social goals. Another important aspect to consider is to be conscious about the geographic stage in which these people are since it can change and/or affect the way they have to be approached and the special tools to be provided. As the inclusion

policies are the major aspects that regulate inclusive education, we will see in the incoming section, how it has been approached in the educational scope.

2.2.2.2 ***Inclusive education.*** Although inclusion is an important term, it has been introduced for many years without being completely accomplished in educational contexts. To start recognizing this important factor in academic fields, some authors start defining it. According to Quintanilla (2014) an idealized inclusive education is in charge of allowing all the population to achieve scholarization and to enhance their educational and life skills not only for having a good development in the classroom but also when facing real life and social situations. Recovering crucial information from Quintanilla (2014) about education, Shaw (2014) determines that inclusive education is a place where all children learn together, participate in the same lessons and recreations, and have appropriate materials that corresponds to a variety of necessities. In the same line, PBS Parents (2017) states that inclusive education takes place when students with or without disabilities integrate and participate in the same classes. Research has shown that when students with disabilities attend "normal" classes, many positive things happen. Additionally, this author asserts that inclusive education stands for the idea that all students and every family deserve to be valued equally as well as to have the same opportunities and experiences. It is also about building friendship, membership, and opportunities like everyone else. Moreover it means to provide to students what they need to learn. Taking into account the preceding authors, this project defines inclusive education as the way in which everybody, no matter their differences, can be at the same place sharing an educative environment and achieving equal goals as a whole for being prepared not only for lessons, but for life. The objective is not to create a special education, but to integrate all the people in the established educational system by implementing a variety of strategies to reach the aim of inclusive

classrooms.

2.2.2.3 Inclusion Strategies. Nowadays, inclusion plays a relevant role in society, and EFL teachers must deal with it. Therefore, teachers require knowledge of different inclusive strategies to work with. According to Queensland Curriculum & Assessment Authority (2014), inclusion strategies refer to the actions that enable learners with disabilities to get involved in learning experiences as well as a learner without disabilities; also, the way of assessment is a key concept since these students need to feel able to carry out any activity or test and show their knowledge or skills. In the same line of thoughts, Cornell University Center for Teaching Excellence (2016) agrees with Queensland Curriculum & Assessment Authority when he explains that inclusion strategies are any number of tracking approaches that attempt to the necessities of students from certain scenarios, learning characteristics, and strengths; similarly to O'Malley and Chamot, (1990), and Oxford, (1990) complements the previous definitions by stating that learning strategies are attitudes in which students engage or methods towards fixing problems or performing tasks. Having in mind the above definitions, this project defines inclusive strategies as planned steps that may come from teachers' experiences or sequential techniques that help to guide teaching in any context, and to any student that may has or not special necessities. It is difficult to find information about inclusion concerning education, and even more difficult to find strategies that guide teachers to approach an inclusive teaching of a foreign language.

According to the previous affirmation, this project considers fundamental to share different strategies of three different authors about inclusive strategies to teach a foreign language. It is evident that teaching a foreign language has been approached many years ago and different strategies have emerged to cover different necessities in diverse contexts. Nowadays, that

inclusion is a topic of matter in the educational domain, looking for inclusive strategies to teach a foreign language to blind student is a challenge. Fortunately Medina and Huertas (2008) rescue the importance of collecting essential information from experts or population that has worked with blind students. These authors also complement their strategies by stating that it is crucial as a strategy of inclusion to adapt and elaborate material for blind students. Finally, Medina and Huertas (2008) provide an engaging strategy that deals not only with how to teach a foreign language, but also how to raise consciousness in the students which are involved in a current classroom with a blind student. The strategy consists on making dynamics of awareness by binding up some students during the classroom and asks them to do the normal exercises in that way.

On the other hand, Walker (2013) strongly states that the main strategy to take into account is that one case with a blind student could be very different from another. It means that what teachers have to be aware about, is that one strategy that suits with a student, may not suits with another. The first step to start working with a blind student is to understand the factors that are around her/him. Although this project considers significant to preserve the idea that all the students are different and the teachers have to spend time recognizing the specific needs that those students present, this project also considers essential the fact that teachers need to start adapting material and teachers also need to have a bank of sources not only for future cases they will have, but to share with all the people that is looking for this limited information.

2.2.2.4 Universal Design for Learning Guidelines. The concept universal design comes from the area of architectural and product development stated by Ron Mace in 1980. It consists in creating physical environments where most of the people have access. Pastor, et al. faced the problem not from the architectural development, but from education. The project focuses in the

access for all the population to the learning aspects. It helps to take into account the students' variability by suggesting flexibility in objects, methods, materials and evaluation that allow to satisfy the different needs presented by the learners. This investigation develop three main principles, each one containing different guidelines.

2.2.2.4.1 Principle one: providing multiple forms of representation (the what of the learning). The students perceive the information presented in classrooms in different ways. There is not only an optimal presentation medium for all the students, but providing multiple representation options is essential.

Guidelines one: provide different options for the perception: the learning process is not achievable when the information could not be perceived by the students or when the information is presented in formats that requires effort and extra aids. That is why, according to Pastor, et al. learning barriers can be reduced by providing the same information through different modalities (visual, auditory or touch) and providing a format that could be adjusted by the users.

Checkpoint. To offer options that allow the personalization in the presentation of the information through the use of digital materials that can be adjusted and modified according to the necessities of the learners. However, it is not assure that all the digital material can be adapted, it has to be carefully selected.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

Display information in a flexible format so that the following perceptual features can be varied:

- The size of text, images, graphs, tables, or other visual content
- The contrast between background and text or image

- The color used for information or emphasis
- The volume or rate of speech or sound
- The speed or timing of video, animation, sound, simulations, etc.
- The layout of visual or other elements
- The font used for print materials

Checkpoint. Offer alternatives to auditory information: Even though the use of auditory material in the educational settings is of relevance and beneficial for some students, there are other pupils with difficulties at the moment of listening, that is why the educators need to ensure that all the learners can have access to the content presented.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Use text equivalents in the form of captions or automated speech-to- text (voice recognition) for spoken language
- Provide visual diagrams, charts, notations of music or sound
- Provide written transcripts for videos or auditory clips
- Provide American Sign Language (ASL) for spoken English
- Use visual analogues to represent emphasis and prosody (e.g., emoticons, symbols, or images)
- Provide visual or tactile (e.g., vibrations) equivalents for sound effects or alerts
- Provide visual and/or emotional description for musical interpretation

Checkpoint. Provide alternatives for visual information: presenting the students visually information can help the mental relation between what is intended to be transmitted and the image. However, for some students is nule the access to this aid. There are two visual fields that

requires for alternatives at the moment of being presented. First we have the images, videos, animations and graphics that can be abstract for some learners and inaccessible for those with visual disabilities.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide descriptions (text or spoken) for all images, graphics, video, or animations
- Use touch equivalents (tactile graphics or objects of reference) for key visuals that represent concepts
- Provide physical objects and spatial models to convey perspective or interaction
- Provide auditory cues for key concepts and transitions in visual information

and the second one is about different ways of presenting written information or texts that although there are some programs to convert this written forms into spoken forms, there is still a lack of intonation and melody.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Follow accessibility standards (NIMAS, DAISY, etc.) when creating digital text
- Allow for a competent aide, partner, or "intervener" to read text aloud
- Provide access to text-to- Speech software

Guidelines two: providing multiple options for language, mathematical expressions and symbols: students differ in the way they deal with different types of linguistic or non-linguistic representations. A vocabulary that is clear for some students, could be confusing for others. An

educative and important strategy is assuring that students are receiving alternative representations.

Checkpoint. Clarify vocabulary and symbols: To ensure that the presentation of vocabulary and meanings and the understanding of these content is accessible for all the learners, it is mandatory to present the information in different ways.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Pre-teach vocabulary and symbols, especially in ways that promote connection to the learners' experience and prior knowledge
- Provide graphic symbols with alternative text descriptions
- Highlight how complex terms, expressions, or equations are composed of simpler words or symbols
- Embed support for vocabulary and symbols within the text (e.g., hyperlinks or footnotes, to definitions, explanations, illustrations, previous coverage, translations)
- Embed support for unfamiliar references within the text (e.g., domain specific notation, lesser known properties and theorems, idioms, academic language, figurative language, mathematical language, jargon, archaic language, colloquialism, and dialect)

Checkpoint. Clarify the syntax and structure: Students can create meaning of new words out of the ones they already know. However, for achieving it, it is needed the use or basic knowledge of the language structures. The focus is the students to understand the structure between the words learnt, which may interfere in the comprehension of the product presented.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Clarify unfamiliar syntax (in language or in math formulas) or underlying structure (in diagrams, graphs, illustrations, extended expositions or narratives) through alternatives that:
- Highlight structural relations or make them more explicit
- Make connections to previously learned structures
- Make relationships between elements explicit (e.g., highlighting the transition words in an essay, links between ideas in a concept map, etc.)

Checkpoint. Facilitate the decoding of texts, mathematical notations and symbols: students have to be in constant contact with the symbols in order to mechanize their use, so that learners can decode text in an efficient way.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Allow the use of Text-to- Speech
- Use automatic voicing with digital mathematical notation (Math ML)
- Use digital text with an accompanying human voice recording (e.g., Daisy Talking Books)
- Allow for flexibility and easy access to multiple representations of notation where appropriate (e.g., formulas, word problems, graphs)
- Offer clarification of notation through lists of key terms

Checkpoint. Promote compression between different languages: The multilingual comprehension has to be foster among the students in the classroom since the access to the

learning process can be affected by languages barriers for those students who are not monolingual.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Make all key information in the dominant language (e.g., English) also available in first languages (e.g., Spanish) for learners with limited-English proficiency and in ASL for learners who are deaf
- Link key vocabulary words to definitions and pronunciations in both dominant and heritage languages
- Define domain-specific vocabulary (e.g., "map key" in social studies) using both domain-specific and common terms
- Provide electronic translation tools or links to multilingual glossaries on the web
- Embed visual, non-linguistic supports for vocabulary clarification (pictures, videos, etc)

Checkpoint. Illustrate through multiple media: although the use of texts as content presentation predominate in the learning process, it is not the most suitable way for presenting information in all the cases. The implementation of illustrations, graphics, images, and so on, have a more positive impact on the pupils and to create a deeper meaning of the content presented.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Present key concepts in one form of symbolic representation (e.g., an expository text or a math equation) with an alternative form (e.g., an illustration,

dance/movement, diagram, table, model, video, comic strip, storyboard, photograph, animation, physical, or virtual manipulative)

- Make explicit links between information provided in texts and any accompanying representation of that information in illustrations, equations, charts, or diagrams

Guidelines three: providing options for comprehension: the education purpose is to provide students the tools to transform the information they have in useful knowledge.

Checkpoint. Activate or replace previous knowledge: the elicitation of previous knowledge to make the connection with the new content to be introduced promotes a more meaningful learning for the students by assimilation. it is limiting for the learners that are not able to make those cognitive connections.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Anchor instruction by linking to and activating relevant prior knowledge (e.g., using visual imagery, concept anchoring, or concept mastery routines)
- Use advanced organizers (e.g., KWL methods, concept maps)
- Pre-teach critical prerequisite concepts through demonstration or models
- Bridge concepts with relevant analogies and metaphors
- Make explicit cross-curricular connections (e.g., teaching literacy strategies in the social studies classroom)

Checkpoint. Highlight patterns, fundamental characteristics, main ideas and relationships: it deals with the relevance of identifying the main characteristics in the information provided, this ability improves time management, and relation between concepts.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Highlight or emphasize key elements in text, graphics, diagrams, formulas
- Use outlines, graphic organizers, unit organizer routines, concept organizer routines, and concept mastery routines to emphasize key ideas and relationships
- Use multiple examples and non-examples to emphasize critical features

- Use cues and prompts to draw attention to critical features
- Highlight previously learned skills that can be used to solve unfamiliar problems.

Checkpoint. Guiding information, visualization and manipulation processing: it focuses on developing the cognitive processes that allows the students to make an effective manipulation of the information provided. Well designed materials can help all the students to achieve these processes.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Give explicit prompts for each step in a sequential process
- Provide options for organizational methods and approaches (tables and algorithms for processing mathematical operations)
- Provide interactive models that guide exploration and new understandings
- Introduce graduated scaffolds that support information processing strategies
- Provide multiple entry points to a lesson and optional pathways through content (e.g., exploring big ideas through dramatic works, arts and literature, film and media)
- "Chunk" information into smaller elements
- Progressively release information (e.g., sequential highlighting)

- Remove unnecessary distractions unless they are essential to the instructional goal

Checkpoint. Maximize transfer and generalization: There is a need to foster abilities to generalize and contextualize the new learning on the students in order for them to apply their knowledge in every context.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide checklists, organizers, sticky notes, electronic reminders
- Prompt the use of mnemonic strategies and devices (e.g., visual imagery, paraphrasing strategies, method of loci, etc.)
- Incorporate explicit opportunities for review and practice
- Provide templates, graphic organizers, concept maps to support note-taking
- Provide scaffolds that connect new information to prior knowledge (e.g., word webs, half-full concept maps)
- Embed new ideas in familiar ideas and contexts (e.g., use of analogy, metaphor, drama, music, film, etc.)
- Provide explicit, supported opportunities to generalize learning to new situations (e.g., different types of problems that can be solved with linear equations, using physics principles to build a playground)
- Offer opportunities over time to revisit key ideas and linkages between ideas

2.2.2.4.2 Principle two: providing multiple forms of action and expression (the how of learning). Learners differ in the way they can explore a learning environment and also differ in the way they can express their knowledge. Action and expression require different strategies, practices and organization.

Guideline four: providing options for physical interaction: texts or books printed tend to limit to explore or interact physically. This limitation can create barriers for some students, especially for those with a physical disability. It is important to provide materials that all the students can use.

Checkpoint. Vary the methods for response and navigation: learners fully diverge in their capacities to approach their physical environment. Diminish learning barriers presented by the motor demands of a task by providing different ways for response, selection and composition. Moreover, learners also vary extensively in their optimal ways for driving through information and activities. In order to give the same opportunities for interaction with learning experiences, an instructor have to guarantee multiple ways for navigation and control is accessible.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide alternatives in the requirements for rate, timing, speed, and range of motor action required to interact with instructional materials, physical manipulatives, and technologies.
- Provide alternatives for physically responding or indicating selections (e.g., alternatives to marking with pen and pencil, alternatives to mouse control)
- Provide alternatives for physically interacting with materials by hand, voice, single switch, joystick, keyboard, or adapted keyboard

Checkpoint. Optimize access to tools and assistive technologies: child provided with tools is regularly not sufficient. Children need to be provided with the support to use the tool adequately. In addition, many learners need help navigating through their environment (both in terms of physical space and the curriculum), and all learners should be given the opportunity

to use tools that might help them meet the goal of full participation in the classroom. CAST (2011).

Nevertheless, a big amount of learners with disabilities must utilize Assistive Technologies for navigation, interaction, and composition upon a current basis. It is fundamental that instructional technologies and curricula do not set inadvertent barriers to the utilization of these assistive technologies. It is also proposed that "An important design consideration, for example, is to ensure that there are keyboard commands for any mouse action so that learners can use common assistive technologies that depend upon those commands". CAST (2011). It is relevant to emphasize that creating a lesson physically accessible does not inadvertently extract its challenge to learning.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide alternate keyboard commands for mouse action
- Build switch and scanning options for increased independent access and keyboard alternatives
- Provide access to alternative keyboards
- Customize overlays for touch screens and keyboards
- Select software that works seamlessly with keyboard alternatives and alt keys

Guideline five: provide options for expression and communication: there is not one expression medium that works similarly for all the students or for all the types of communication. It is important to provide to the students alternative options to express easily ideas, knowledge and concepts in the learning environment.

Checkpoint. Use multiple media for communication: it is of relevance to supply learners with alternative media for expression in order to diminish media-specific barriers for expression among learners with diverse special needs, and also increment opportunities for all learners to evolve its range of expression in a media-rich world. An example is that "it is important for all learners to learn *composition*, not just writing, and to learn the optimal medium for any particular content of expression and audience". CAST (2011)

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Compose in multiple media such as text, speech, drawing, illustration, design, film, music, dance/movement, visual art, sculpture or video
- Use physical manipulatives (e.g., blocks, 3D models, base-ten blocks)
- Use social media and interactive web tools (e.g., discussion forums, chats, web design, annotation tools, storyboards, comic strips, animation presentations)
- Compose in multiple media such as text, speech, drawing, illustration, comics, storyboards, design, film, music, visual art, sculpture, or video
- Solve problems using a variety of strategies

Checkpoint. Use multiple tools for construction and composition: even though a lot of years have passed away, education is still focused on tradition tolls. There is a tendency in schooling to focus on traditional tools rather than contemporary ones. This tendency has several liabilities: 1) it does not prepare learners for their future; 2) it limits the range of content and teaching methods that can be implemented; 3) it restricts learners ability to express knowledge about content (assessment); and, most importantly, 4) it constricts the kinds of learners who can be successful. CAST (2011)

Contemporary media tools are equipped with a more flexible and accessible toolkit for learners to successfully take advantage in their learning and to express what they know. Curricula should provide several alternatives excepting that the lesson is centered on a singular tool (e.g., learning to draw with a compass). Furthermore, “Like any craftsman, learners should learn to use tools that are an optimal match between their abilities and the demands of the task”. CAST (2011)

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide spellcheckers, grammar checkers, word prediction software
- Provide Text-To-Speech software (voice recognition), human dictation, recording
- Provide calculators, graphing calculators, geometric sketchpads, or pre-formatted graph paper
- Provide sentence starters or sentence strips
- Use story webs, outlining tools, or concept mapping tools
- Provide Computer-Aided-Design (CAD), music notation (writing) software, or mathematical notation software
- Provide virtual or concrete mathematics manipulatives (e.g., base-10 blocks, algebra blocks)
- Use web applications (e.g., wikis, animation, presentation)

Checkpoint. Build fluencies with graduated levels of support for practice and performance: learners have to work out in a variety of fluencies (e.g., visual, audio, mathematical, reading, etc.). This is to say that they need regularly multiple scaffolds to support them as they practice and become independent. Fluency can be developed

throughout performance as well as freedom. Performance does support learners for it enable them to synthesize their learning in personally meaningful ways.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide differentiated models to emulate (i.e. models that demonstrate the same outcomes but use differing approaches, strategies, skills, etc.)
- Provide differentiated mentors (i.e., teachers/tutors who use different approaches to motivate, guide, feedback or inform)
- Provide scaffolds that can be gradually released with increasing independence and skills (e.g., embedded into digital reading and writing software)
- Provide differentiated feedback (e.g., feedback that is accessible because it can be customized to individual learners)
- Provide multiple examples of novel solutions to authentic problems

Guideline six: providing options for executive functions: the "executive functions" allow the student to take advantage of their environment. These high level capabilities foster humans to act skilfully and set up "long-term goals, plan effective strategies for reaching those goals, monitor their progress, and modify strategies as needed". CAST (2011)

Checkpoint. Guide appropriate goal-setting: it is not about setting up goals for students; instead, it is a must that learners develop skills for setting up effective goals. For this reason, "The UDL framework embeds graduated scaffolds for learning to set personal goals that are both challenging and realistic". CAST (2011)

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide prompts and scaffolds to estimate effort, resources, and difficulty
- Provide models or examples of the process and product of goal-setting
- Provide guides and checklists for scaffolding goal-setting
- Post goals, objectives, and schedules in an obvious place

Checkpoint. Support planning and strategy development: after the goal is set, effective students and problem-solvers design a strategy that must include the tools they will use for achieving that goal. However, there are some differences between learners, for example,

> For young children in any domain, older learners in a new domain, or any learner with one of the disabilities that compromise executive functions (e.g., intellectual disabilities), the strategic planning step is often omitted, and trial and error attempts take its place. CAST (2011)

In addition, helping students become more plan-full and strategic, diverse options are needed, for example "cognitive 'speed bumps' that prompt them to 'stop and think;' graduated scaffolds that help them actually implement strategies; or engagement in decision-making with competent mentors".

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Embed prompts to "stop and think" before acting as well as adequate space
- Embed prompts to "show and explain your work" (e.g., portfolio review, art critiques)
- Provide checklists and project planning templates for understanding the problem, setting up prioritization, sequences, and schedules of steps
- Embed coaches or mentors that model think-alouds of the process

- Provide guides for breaking long-term goals into reachable short-term objectives

Checkpoint. Facilitate managing information and resources: storing information in students minds in a complex activity and requires scaffolds and organization. One of the limits of executive function is that imposed by the limitations of so-called working memory. This "scratch pad" for maintaining chunks of information where they can be accessed as part of comprehension and problem-solving is very limited for any learner and even more severely limited for many learners with learning and cognitive disabilities. As a result, many such learners seem disorganized, forgetful, and unprepared. Wherever working memory capacity is not construct-relevant in a lesson, it is important to provide a variety of internal scaffolds and external organizational aids – exactly those kinds that executives use - to keep information organized and "in mind". CAST (2011)

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide graphic organizers and templates for data collection and organizing information
- Embed prompts for categorizing and systematizing
- Provide checklists and guides for note-taking

Checkpoint. Enhance capacity for monitoring progress: feedback is essential for learning, so learners need to have a concise image of the progress they are/or not having. If assessment and feedback do not meet instruction or if they are not provided in a timely way; learning will not change since students do not know what to do different. This absence of knowledge regarding what to improve can make learners appear "perseverative", careless, or unmotivated. Students need feedback that can be more explicit, timely, and accessible. Moreover, "Especially

important is providing "formative" feedback that allows learners to monitor their own progress effectively and to use that information to guide their own effort and practice. CAST (2011)

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Ask questions to guide self-monitoring and reflection
- Show representations of progress (e.g., before and after photos, graphs and charts showing progress over time, process portfolios)
- Prompt learners to identify the type of feedback or advice that they are seeking
- Use templates that guide self-reflection on quality and completeness
- Provide differentiated models of self-assessment strategies (e.g., role-playing, video reviews, peer feedback)
- Use of assessment checklists, scoring rubrics, and multiple examples of annotated student work/performance examples

2.2.2.4.3 Principle three: providing multiple means of engagement. (The why of learning). Affective factors play an important role in learning processes, and students differ in the way they are motivated to learn.

Guidelines seven: providing options for recruiting interest: it is important to consider that interests change when a person develop more knowledge and abilities, according to the biological environment and as students are getting older. For this reason is necessary to create different strategies that respond correctly the intra and inter differences that exist among the students.

Checkpoint. To optimize the individual election and autonomy: providing choices to the students can develop certain attitudes toward the learning process as self-determination and pride

in accomplishment. However, all the students differ in regards to how much and what kind of choices they prefer. That is why, it is important to optimize the right kind of choice and the level of independence in the learners.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide learners with as much discretion and autonomy as possible by providing choices in such things as:
    - The level of perceived challenge
    - The type of rewards or recognition available
    - The context or content used for practicing and assessing skills
    - The tools used for information gathering or production
    - The color, design, or graphics of layouts, etc.
    - The sequence or timing for completion of subcomponents of tasks
- Allow learners to participate in the design of classroom activities and academic tasks
- Involve learners, where and whenever possible, in setting their own personal academic and behavioral goals.

Checkpoint. Optimize relevance, value, and authenticity: students are engaged with activities and information that is meaningful and related with their goals. In educational contexts, teachers raise interests in their students by showing them the utility and relevance of learning and they do this through activities that are authentic and meaningful. However, it is crucial to know that all the students do not value the activities in the same way, that is why it is important to offer options that optimize what is relevance, valuable, meaningful and authentic to the learner.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

Vary activities and sources of information so that they can be:

- Personalized and contextualized to learners' lives
- Culturally relevant and responsive
- Socially relevant
- Age and ability appropriate
- Appropriate for different racial, cultural, ethnic, and gender groups

- Design activities so that learning outcomes are authentic, communicate to real audiences, and reflect a purpose that is clear to the participants
- Provide tasks that allow for active participation, exploration and experimentation
- Invite personal response, evaluation and self-reflection to content and activities
- Include activities that foster the use of imagination to solve novel and relevant problems, or make sense of complex ideas in creative ways

Checkpoint. Minimize threats and distractions: when teachers minimize threats and distractions in a classroom, they are creating a safe place to the students. What is threatening or distracting for a learner depends on their individual needs and background.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Create an accepting and supportive classroom climate
- Vary the level of novelty or risk
- Charts, calendars, schedules, visible timers, cues, etc. that can increase the predictability of daily activities and transitions

- Creation of class routines
- Alerts and previews that can help learners anticipate and prepare for changes in activities, schedules, and novel events
- Options that can, in contrast to the above, maximize the unexpected, surprising, or novel in highly routinized activities
- Vary the level of sensory stimulation
- Variation in the presence of background noise or visual stimulation, noise buffers, number of features or items presented at a time
- Variation in pace of work, length of work sessions, availability of breaks or time-outs, or timing or sequence of activities
- Vary the social demands required for learning or performance, the perceived level of support and protection and the requirements for public display and evaluation
- Involve all participants in whole class discussions

Guideline eight: providing options to maintain the effort and persistence: a key educational objective is to develop the individual abilities of autoregulation and auto determination that guarantee to all the students the possibility to learn.

Checkpoint. Heighten salience of goals and objectives: some students need support to remember the initial goals. It is important for them to build periodic reminders of the goal and its value.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Prompt or require learners to explicitly formulate or restate goal

- Display the goal in multiple ways
- Encourage division of long-term goals into short-term objectives
- Demonstrate the use of hand-held or computer-based scheduling tools
- Use prompts or scaffolds for visualizing desired outcome
- Engage learners in assessment discussions of what constitutes excellence and generate relevant examples that connect to their cultural background and interests.

Checkpoint. Vary demands and resources to optimize challenge: learners differ not only in their skills and abilities, but also in the kind of challenges that motivate them to do their best in their activities. It is important to provide learners with appropriate resources to accomplish the different tasks proposed. As stated by (author) "Providing a range of demands, and a range of possible resources, allows all learners to find challenges that are optimally motivating"

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Differentiate the degree of difficulty or complexity within which core activities can be completed
- Provide alternatives in the permissible tools and scaffolds
- Vary the degrees of freedom for acceptable performance
- Emphasize process, effort, improvement in meeting standards as alternatives to external evaluation and competition

Checkpoint. Foster collaboration and community: nowadays, all learners should be able to relate effectively in terms of communication and collaboration with a community of learners. When approaching flexible instead of fixed grouping, teachers are giving the opportunity to let students discover how to cooperate and work effectively with others.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Create cooperative learning groups with clear goals, roles, and responsibilities
- Create school-wide programs of positive behavior support with differentiated objectives and supports
- Provide prompts that guide learners in when and how to ask peers and/or teachers for help
- Encourage and support opportunities for peer interactions and supports (e.g., peer-tutors)
- Construct communities of learners engaged in common interests or activities
- Create expectations for group work (e.g., rubrics, norms, etc.)

Checkpoint. Increase mastery-oriented feedback: feedback is a crucial aspect in the process of learning. For that reason and according to (author) ithas to be "relevant, constructive, accessible, consequential, and timely". Mastery oriented feedback guide the students through the process instead of giving them a fixed notion of performance and compliance. It also stimulates the effort and practice.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide feedback that encourages perseverance, focuses on development of efficacy and self-awareness, and encourages the use of specific supports and strategies in the face of challenge
- Provide feedback that emphasizes effort, improvement, and achieving a standard rather than on relative performance

- Provide feedback that is frequent, timely, and specific
- Provide feedback that is substantive and informative rather than comparative or competitive
- Provide feedback that models how to incorporate evaluation, including identifying patterns of errors and wrong answers, into positive strategies for future success

Guideline nine: providing options for autoregulation: it is important to develop intrinsic abilities in the students to regulate their own emotions and motivation.

It is crucial to contextualize the theory and the concepts to our environment by specifying aspects of the project and how it will be carried out.

Checkpoint. Promote expectations and beliefs that optimize motivation: it is important for learners to know the aspects that she or he finds motivating. For this knowledge to be successful, learners need to build realistic objectives and foster positive values and beliefs. Additionally, learners need to deal with frustration and avoid anxiety when working with objectives. That is why it is important to give many options to the students to help them to stay motivated.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide prompts, reminders, guides, rubrics, checklists that focus on:
    - Self-regulatory goals like reducing the frequency of aggressive outbursts in response to frustration
    - Increasing the length of on-task orientation in the face of distractions
    - Elevating the frequency of self-reflection and self-reinforcements
- Provide coaches, mentors, or agents that model the process of setting personally appropriate goals that take into account both strengths and weaknesses

- Support activities that encourage self-reflection and identification of personal goals

Checkpoint. Facilitate personal coping skills and strategies: it is not sufficient when you provide the learners with self-regulatory skills. CAST state that "They will need sustained apprenticeships that include scaffolding. Reminders, models, checklists, and so forth can assist learners in choosing and trying an adaptive strategy for managing and directing their emotional responses to external events… or internal events.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Provide differentiated models, scaffolds and feedback for:
    - Managing frustration
    - Seeking external emotional support
    - Developing internal controls and coping skills
    - Appropriately handling subject specific phobias and judgments of "natural" aptitude (e.g., "how can I improve on the areas I am struggling in?" rather than "I am not good at math")
    - Use real life situations or simulations to demonstrate coping skills

Checkpoint. Develop self-assessment and reflection: it is important for learners to monitor their emotions. As all the learners have different abilities, some of them will need explicit instructions and modeling in order to succeed in this aspect. One factor that affects motivation is when a learner cannot recognize his or her own process. That is why, it is vital to provide learners different examples and models of self-assessment techniques so they can identify and chose the one that is better for them.

The next examples for implementation are literally taken from CAST (2011).

Implementation Examples:

- Offer devices, aids, or charts to assist individuals in learning to collect, chart and display data from their own behavior for the purpose of monitoring changes in those behaviors
- Use activities that include a means by which learners get feedback and have access to alternative scaffolds (e.g., charts, templates, feedback displays) that support understanding progress in a manner that is understandable and timely.

3. Methodology

3.1 Type of study

A qualitative study has some implications to deal with. First of all, conducting a qualitative study means to deal with real life concerns. As stated by Denzin and Lincoln (2005), it is "an interpretive naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them." (p. 3). In addition, the point of view or perspective of the research participants is of relevance. In a qualitative study, special consideration to the researcher is given regarding its own self-reflection about its attitude, position and role in the society which is vital. Denzin and Lincoln (2005) posit that "behind all research stands the biography of the gendered researcher, who speaks from a particular class, racial, cultural and ethnic community perspective"(p. 21).

This project was also considered as a case-study since it lied in finding teaching strategies for a blind student implemented by four professors of *Licenciatura en Bilingüismo con Énfasis en Inglés.* According to Smith (1978) "the case, then, could be a single person who is a case example of some phenomenon, a program, a group, an institution, a community, or a specific policy".

3.2 Context.

This research project was carried out in the public institution *Universidad Tecnológica de Pereira* which was created by the law 41 of 1958, but just until the 4th of March of 1961 it started to labor under the direction of its founder and first principle Jorge Roa Martinez, taking as its main headquarters the city of Pereira.

The university is located between two neighborhoods. The first one is called Alamos and is a high (6) strata neighborhood; the other one is Tokio, which is a place that belongs to the community of Villa Santana with a low (1) strata level. This remarkable contrast leads a high cultural diversity in the surroundings.

The university has a rich schedule conformed by classes from Monday to Saturday from 6:00am to 10:00pm which may vary depending on the academic program. The campus have nine faculties which includes academic undergraduate programs such as engineers, technologies, technician, bachelor's degrees, that are implemented in the morning, in the afternoon, and in the night; regarding post-grades specializations, there are master's degrees, PHds, and extension agreement programs; in professionalization there are programs addressed only to people already graduated from industrial technology, recreation and sports sciences; and Centros Educativos Regionales de Educación Superior (CERES) which are pre-grade programs offer in municipalities such as Belén de Umbría, Vichada, Quinchía, Pueblo Rico and Mistrató.

As the institution lodges a considerable amount of students, it offers many aid programs as transportation and food bonus, and different ways to decrease the cost of the tuition to avoid students dropping out their careers.

3.2.1 Setting. The university together with the academic community, started considering the idea of the creation and implementation of an academic program based on the learning/teaching of the English language. The *Licenciatura en Lengua Inglesa* program was approved through the agreement No. 15 of April the 30th, 2004. However, in 2017 the program changes its bases as a requirement of the *Ministerio de Educación Nacional* and ended up being *Licenciatura en Bilingüismo con Énfasis en Inglés* program.

The aim of this program is to structure the theoretical and pedagogical components as well as the epistemological, methodological and didactic ones taking into consideration the particular, regional, and local context in order to approach the social necessities that this community is demanding regarding the widespread use of a language in common. The communicative competence which integrates the linguistic, pragmatic and sociolinguistic knowledge allows the learners to develop a better sociocultural level in terms of the learning of a foreign language.

3.3 Participants

This case study was implemented with one blind student who was in sixth semester and four professors from the *Licenciatura en Bilingüismo con Énfasis en Inglés* program at *Universidad Tecnológica de Pereira*. The participants of this project were chosen by non-probability sampling. Honigmann's 1982 study (as cited in Merriam, 2009) stated that this sampling methods

> "are logical as long as the field worker expects mainly to use his data not to answer questions like 'how much' or 'how often' but to solve *qualitative* problems, such as discovering what occurs, the implication of what occurs, and the relationship linking occurrences"

The blind student was selected by convenience sampling proposed by Merriam (2009) on the grounds that the student was the only blind person of the program; and factors such as availability, time, money, and location were easy to reach. The participant is a Spanish native speaker who is 54 years old and he is blind since the age of 49 years. During the project he was exposed to English the majority of the time in his academic context.

The four professors were considered by criterion-based selection according to LeCompte and Preissle (1993) where researchers created a list of essential characteristics and then located units that matched that list. The criteria was based on two main characteristics: Teaching in sixth semester and having the blind student in their classes.

3.4 Researchers' role.

The three researchers involved in this project had the role of observers as participants since they had access to particular settings to recognize and discover different teaching strategies. According to Merriam (2009), the researchers should have a close relationship with the members of the group, but their main focus is on gathering data instead of participating in the activities proposed into the classroom.

3.5 Data collection instruments.

As reported by Rouse and McLaughing (2016), the instruments for data collection are tools for the researcher(s) in order to collect and assess information taking into account different amount of sources to evaluate if the problem or hypothesis stated as the purpose of the research is being achieved or not. It allows the researcher(s) to answer essential questions and to analyze outcomes to make predictions. The instruments apart from being reliable and valid need to have a relation with the aim of the project and the theoretical framework.

In this project, stimulated recalls were used as the data collection method, having observations, memos, and interviews as techniques.

3.5.1 Stimulated recall (SR). This is a ramification of introspective methods. They are useful by eliciting data about processes involved in tasks or activities. According to Gass and Mackey (2000), humans can access their internal thoughts and verbalize those processes. As a complement, Gass and Mackey (2000) made reference to the importance that SR, together with

'well-constructed research methods' have to contextualize the data collected and to get the perceptions of the participants on a mental process that have been done before. In other words, it is a method for recovering memories. In the same line, Bloom (1953) stated that "the basic idea underlying the method of stimulated recall is that a subject may be enabled to relieve an original situation with vividness and accuracy if he is presented with a large number of the cues of stimuli which occurred during the original situation" (p. 161)

3.5.1.1 Observations. Observations respond to the information received outside in the world through our senses, or recording information using scientific tools and instruments. Some researchers have posited that observation is a research method and a data collection method. Baker (2006) said that observation is a complex research method since it regularly demands the researcher to perform a variety of roles as well as to use a series of techniques. On the other hand, Dudovskiy (2013) explained about structured observation where the data collection is carried out with specific variables defined beforehand, and unstructured observations are carried out in open and freeways with no defined variables. Dudovskiy also posited the advantages when using observation as a data collection tool that is, "direct access to research phenomena, high levels of flexibility in term of application and generating a permanent record of phenomena to be referred to later if a need arises". Similarly to Bake; Evertson and Green (1986) confirmed that the purpose of the observation deals with the "theory, beliefs, assumptions, and/or past experiences of the person who is doing the observation".

Moreover, Evertson and Green (1986) posited that in order to know what an observation is, the researcher needs to know the purpose of his/her project or study. They said that all observations are somehow similar; however, they differ in many ways as different environments,

different events will be noticed, and that those differences lead to different strategies for observing, levels of systematization, and levels of formality.

Taking into account the above explanations, researchers implemented eight semi-structured observations by focusing on particular strategies used by four professors with a blind student. These observations had formats that were piloted twice before the implementation of the project. The observations were carried out on September, 2017. (See appendix of observation formats on page 120, section Appendix.)

3.5.1.2 Memos. Writing memos helps researchers to clarify ideas, thoughts, and reflections made while collecting data. As Birks, Chapman and Francis (2008) stated, memos help to articulate the assumptions and perspectives collected by being immerse in the participant's world. In the same line of thoughts, Saracho (2014) defined memos as the researcher's tool to learn what data needs to be collected to answer the research questions and elaborate the researchers' ideas. Finally, according to Lempert, 2007 (cited by Saracho 2014), memos "provide means for the researchers to engage in a record intellectual conversation with themselves about the data, clarify processes by explaining and defining properties and characteristics…"

In this project, memos were used in the observations having a quadrant to write insights, questions, reflections, confusing actions during the observations, and actions to discuss later in the interviews with the professors.

3.5.1.3 Interviews. An interview is a systematic method for entering deeply into an individual's life to obtain oral responses to oral questions. According to McNamara (1999), the interviews are an essential part of the qualitative research in order to get the insides that the participants have towards their experiences. The role of the interviewer takes a relevant place

since he/she can probe or ask follow-up questions while the interview is developed different to the surveys that are more rigid. When having the responses from the participants, it requires further research especially focus in what was gotten during the interviews. In the same way of thinking, Valenzuela and Shrivastava (n.d.) also considered that interviews are crucial in a qualitative research since as it is a more personal way of collecting data, the interviewer can manage the questions to be presented in such a way that the objective(s) can be achieved. They also classified the interviews in four types, the informal, conversational interview in which the interviewer do not plan a set of questions to be asked to the interviewee, but the interview is approached and design spontaneously according to what the participant is answering; the general interview guide approach which ensures that all the participant follow the same areas of information.

However, it is still casual; the standardized, open-ended interview in this type of interviews, the same open-ended questions are asked to all the participants so the information collected is more reliable for analyzing; and the closed, fixed- response interview which is a narrow way of interviewing where all the participants are asked the same questions and they are provided a set of established answers.

This project based the data collection on five semi-structure, extra class interviews that were carried out with four professors and the blind student of the *Licenciatura* program. In addition, classroom events evidenced in the observations were added to be part of the interview. Interviews were carried out on October 2017 and February 2018. (See appendix of interview formats on page 122, section Appendix.)

3.6 Data Analysis

This project used one instrument: Stimulated Recalls (having observations, memos and interviews as techniques). The data analysis was based in the Grounded Theory method that, according to Glaser and Strauss (1967), consists on the emergence of different categories after analyzing different information. With this method, it was possible to discover theory from data, and as reported by the aforesaid authors, provided to our research project relevant predictions, explanations, and interpretations.

According to Glaser and Strauss (1967), there are three main stages to categorize the analysis of data collection taking into account the triangulation among the different sources of information that were the axe of our project.

1. Comparing incidents applicable to each category (open coding): This stage consist of coding the data obtained into some categories that best represent each statement. The aim is to find as much characteristics of each category as possible.
2. Integrating categories and their properties (axial coding): As more data is being coded under a specific category, it will help to the standardization and selection of that category as the one that will be used to guide the process.
3. Delimiting the theory (selective coding): The number of categories will be reduced while looking at the properties and pertinence of the category in relation to the project, in this way, the categories will be more solid and well structured.

This project was structured by the following procedure:

1. **Piloting**: The observation format was piloted twice. The format resulting from the last piloting was revised with the adviser. However, more adaptations were made during the data collection process. On the other hand, the format for the interviews was piloted once with a professor that is participant of the project in which meaningful changes were

applied for the final version. (See appendix of piloted and final versions of data collection methods on page 120 - 124, section Appendix.)

2. **Implementation:** To start the implementation process, the researchers asked the professors participants the schedules of the courses where the blind student was involved. From these schedules, the researchers distributed the observations according to their availability. That is why, some observations were carried out by the three researchers, others by two of them, and others just by one researcher. It is important to mention that in the classroom observations, each researcher had an observation format. Additionally, each professor participant was observed twice. The process was similar with the interviews. After two weeks of classroom observations, the researchers contacted the four professors-participants and asked them their available schedules to implement the interviews. Each researcher was in charge of one of the four interviews. That is why, although all of the researchers were present at the moment of the interviews, one researcher conducted the interview. It is important to clarify that the remaining two researchers could also ask questions and participate in the interview if she/he considered it necessary. The interviews were audio-recorded.
3. **Transcription:** Each observer transcribed the information gathered in the classroom observations from physical formats to digitized documents. As aforesaid, in some cases there were more than one researcher in the classroom observations, so a unification of the information in the observation formats was made with the purpose of having only two observation formats per professor, one for the first observation and one for the second observation. This process was done in order to facilitate the way in which the interviews were carried out since the observations contained essential information to be asked during

the interviews. Regarding the Interviews, the five audio records collected were transcribed by the researchers into digitized documents as well.

4. **Coding:** The assigned codes for the data collected in observations were divided into number of the observations, professors, and the date of the observation. The code for the observations is represented with the letters "Obs" making allusion to the initial letters of the instrument. They were numerated with 1 or 2 to distinguish the number of the observation implemented. Professors' code include the letters "Prof" making allusion to the initial letters of the participant and were assigned with letters A, B, C, and D. Finally, the date is expressed numerically in the following order: day - month - year. An example is Obs1; ProfA; 02-10-17.

   The Interviews were coded in a similar way. In this example Int; ProfA; 17-10-17; "Int" stands for "interview"; "Prof" stands for "professor"; "A" for identifying each of the professor participants (from A to D); and "17-10-17" is the date in which the interview was carried out (day-month-year). Finally, a similar coding was implemented for the blind student's interview, however, the only change was replacing the code "Prof" and the letter assigned for the code "Par". For instance: Int; Par; 21-02-18.

5. **Data interpretation:** Each researcher was in charge of different observations and interviews to develop the data interpretation. The researchers started to identify, name, and describe the phenomena found.

6. **Integrating categories:** After the process above mentioned, the researchers together revised the interpretations of each data collection instrument and started to identify possible connection routes and casual relationships between them. This information was

organized in a matrix divided into codes, metadata, and self-explanatory categories. (See appendix of matrix on page 126, section Appendix.)

7. **Categories reduction:** In this final stage, researchers chose two core categories: Ways to present the material and the content to the blind student in the classroom, and ways in which the blind student expresses his knowledge. These two categories are related with the seven codes of the matrix.

4. Ethical Considerations.

This research project was committed with the confidentiality and privacy of each participant involved in the study. Since the main instruments to collect data were stimulated recalls and interviews by recording the testimony of professors and students, no names were revealed under any circumstance. It is also important to clarify that the data collected were used only with researcher purposes, and the access to the information compiled through the different instruments was controlled. Finally, every participant of this project signed a consent letter with clear agreements and information about the research project. (See appendix of consent letter on page 130, section Appendix.)

5. Findings

This section presents in detail the actions that the professors that took part in the investigation implemented in different lessons. Those actions were conveyed into strategies that were divided into two main findings: Ways to present material and content to the blind student in the classroom, and ways in which the student expresses his knowledge.

5.1 Ways to present material and content to the blind student in the classroom

The first finding of this research is related to specific actions implemented by the professors-participants regarding the way in which they presented the input to the blind student during the lesson. In this section, four strategies will be found such as verbalization, contextualization and explanation; anticipation of material; group activity; and adaptation of material.

5.1.1 Verbalization, contextualization, and explanation of material and content as a strategy. It was noticed that the four professors did not limit themselves to using visual material in the classroom; some examples of visual material are videos, PowerPoint presentations, and photocopies. Because professors did not limit the inclusion of visual materials in the classes the blind student was attending, the researchers identified three stages where a pre, a while, and a post verbalization, contextualization, and explanation of material and content as a strategy was evidenced.

In the following paragraphs of this finding, it will be found four excerpts containing crucial evidence of the strategy. Regarding the first sample, the professor B sent an email with a description of a video in order for the blind student to get informed in advanced about it. For the second sample, the professor A created an inclusion awareness in the group by asking some students to verbalize a visual information they were presenting. For the third sample, the

professor B arranged external meetings with the student participant to clarify and explain doubts about the topics already covered during the classes. Finally, the last sample deals with the blind student's viewpoint as a support of the strategies used by the professors. The above information can be corroborated through the following observations and interviews excerpts.

Int; ProfB; 17-10-17; L13

Esa sección fue sobre el review de felicity conditions, resulta que en el capítulo que estábamos trabajando en la sección anterior tuvieron unas confusiones terminológicas en ese tema. Entonces yo decidí llevarlo de manera más práctica para que ellos vieran como el tema teórico reflejado en la vida cotidiana, yo le había enviado al estudiante una contextualización escrita del video por correo donde representaba los participantes, cuál era el propósito de la conversación y tenía que explorarlo. […] La idea allí es que él pudiera detectar los speech acts que se dan en la conversación, y en clase era discutir según la teoría qué fallas había en las condiciones de esos actos. Era con ese propósito de vinculación teórica práctica. Era muy importante, yo por eso le pregunté a él explícitamente que si lo había visto, porque obviamente él no iba a tener el referente visual.

Regarding this interview, different actions implemented by professor B can be identified. First of all, it is essential to highlight the fact that the professor does not limit himself to bring visual material to the classes in spite of the blind student's presence as it is the case of the video used in class. Second, the professor B is aware of the necessities that the blind student had in terms of visual material; due to that awareness, the professor B planned the lessons in advanced with certain adjustments of inclusion which were not only suitable for the blind but for all the students in general. It can be supported by the fact that the professor expressed during the interview that he sent through email the video with a written contextualization before the lesson for the student to be familiarized with the topic. The previous example also

demonstrates that an effective access to the input is done through a written channel which allows the student to easily use the JAWS software (screen reader).

In the following sample, verbalization, explanation, and contextualization of visual material and content as a strategy through the development of classes, is evidenced.

Obs2; ProfA; 09-10-17; C2

As all the class was about oral presentations, some students were presenting their topics and ask the rest of the classroom for some information that was in the slides. The professor asks the students to verbalize what they have in the slides in order to make the blind student know what was going on.

It is interpreted that professor A guided this strategy because of the lack of awareness and knowledge of the sighted students. It can be construed that professor A is also aware of the specific necessities of the blind student inasmuch as the professor was prepared to deal with the situation of a visual student presenting visual material that was not being properly verbalized, so that the blind student can have access. In addition, it is interpreted that professor A raises awareness on the rest of the students of the need of making ongoing adaptations. It is important to differentiate this sample from the previous one; it was based on written input to contextualize the video used in class. This time, the professor A attempted to use the oral channel to allow the student access to the input his partners were presenting.

For the next sample, the use of a strategy after the implementation of visual materials was evidenced. In external meetings, the professor summarized and clarified topics already explained.

Int; ProfB; 17-10-17; L311

… trato como de recibir mucho ese feedback de él para ir construyendo esa base de datos de actividades que sí sirven y que no sirve; pero de arreglos inmediatos me toca a mí como acercarme a él y de pronto ahondar más en lo que se estaba discutiendo, o en las reuniones semanales que tenemos yo le digo que me acuerde para discutirlo allí. […] Las reuniones son para summary of what we already taught, what we already explained y la explicación del siguiente.

In this sample, it can be inferred that Professor B was interested in the blind student's understanding and learning process since he wanted to assure through post- class actions that the input provided was clear and accessible for the student. It is also interpreted that this subsequent strategy supports the previous actions by completing a learning process composed of different strategies in different stages. These post-class actions are mainly based on the use of external meetings which summarize and clarify doubts of topics already discussed during the lessons. Additionally, all the strategies described in this finding opened the path for the professor to select specific actions. It is inferred that these actions taken by the professor are based on a trial and error process which provided him with the criteria to select the actions. It is essential to mention that the student participant supports the implementation of the aforesaid strategies in the next data sample.

Int; Par; 21-02-18; L59

El profesor B y la profesora A estaban más familiarizados del tipo de verbalización que yo requiero por cuánto venimos de muy atrás teniendo clases en común.

It is understood that a recognition and a familiarization with the strategy by the professors is needed; in that way, it can be approached and done in an effective way. It means that verbalization, contextualization, and explanation of material and content is a strategy that must be worked on matter the moment it is implemented: pre, while, or post exposure to the

visual material. Additionally, the student participant supported the effectiveness of the strategy by confirming that professor A and B were more suitable with the type of verbalization and contextualization he requires since they have had the experience during some time.

For the pre and while verbalization, explanation, and contextualization of visual material and content, CAST (2011) proposes in The Universal Design for Learning (UDL) a set of alternatives to substitute the visual referent in students with visual disabilities. The non-visual alternatives used by the professor and proposed by the UDL are:

- Provide descriptions (text or spoken) for all images, graphics, video, or animations" (CAST, 2011, p.13).

This can be related with the action that the professor took when he verbalized and explained the video to the blind student. Additionally, he also sent in advanced an email with a written description of the same video with the purpose of contextualizing him.

- Follow accessibility standards (NIMAS, DAISY, etc.) when creating digital text. (CAST, 2011, p.13).

With this alternative, it can be interpreted that the professor's intention when sending the information through the email was to allow the blind student to use his text to speech software (JAWS) in a more accessible way. In addition, it can be evidenced with the data samples and the theory the usefulness of verbalization and explanation as a strategy with visual material implemented in a classroom.

For the post verbalization, explanation, and contextualization of visual material and content, CAST (2011) proposes that for an effective and progressive learning, it is necessary a sequential

and organized feedback that allows the student to monitor his progress

- Provide feedback that encourages perseverance, focuses on development of efficacy and self-awareness, and encourages the use of specific supports and strategies in the face of challenge (CAST, 2011, p.28)
- Provide feedback that is frequent, timely, and specific (CAST, 2011, p.28)
- Provide feedback that is substantive and informative rather than comparative or competitive (CAST, 2011, p.29)

It is interpreted that the professor was conscious that the blind student required a purposeful (sequential and organized) feedback that includes all the parameters stated by CAST (2011) in the "Checkpoint 8.4 - Increase mastery-oriented feedback" to achieve learning objectives.

5.1.2 Group activity as a strategy. It was noticed through the data collected that the professors-participants regularly used group activities as a strategy in their classes with certain purposes such as sharing opinions and thoughts; making contributions, and cooperating in group work. The researchers also found that this strategy was used for the blind student to socialize in the class with the rest of his classmates.

Through the following paragraphs of this finding, it will be found compelling evidence of the strategy above referenced. In the first sample, professor A used group activities with the purpose of sharing opinions in accordance to the topic of the class. In the next sample, professor A used group activity again, but this time she walked the blind student around the classroom, so he could find a pair and talk about the topic of the class. The third sample displays a group activity where professor A wanted the students to share opinions and ideas of a reading before she expanded it for the whole class. For the fourth sample, professor B carried out this strategy

aiming to expand in depth a topic they have already studied. Regarding the last sample, the blind student participant supports the effectiveness of the strategy even though he set some conditions for proper implementation.

Obs2; ProfA; 09-10-17; C1

The professor constantly uses group activities where the students have to share their opinions according to questions she stated related to the topic of the lesson. As the class seemed to have no break, the professor asks the students to stand up, stretch, and walk through the classroom. The blind student was holding professor's A arm to participate in the activity; she is guiding him. Then, the professor asks the students to talk to the partner that is in front of them and share ideas related to the class. The professor tells the blind student who is in front of him by mentioning the partner's name.

From the above sample it is interpreted that professor A is aware of the blind student's necessities; in this case, his lack of mobility in small spaces as she guided him around the classroom in order to find a pair; moreover, it can be inferred that she is compromised with the blind student's social learning process inasmuch as she created opportunities to socialize between partners. It is inferred, as well, that the actions taken by professor A allowed the blind student to interact with a partner and share ideas and thoughts regarding academic information. It is important to add that this group strategy is accompanied by the verbalization strategy; therefore, it is first interpreted that the professor is aware, again, of the blind student's disability; thus, she verbalized the name of the person who was in front of him, so that the student knew who he was interacting with. As a second point, the professor knew that no matter the strategy used, the verbalization strategy is always needed. Lastly, the union of these strategies may be done because of the experience of the professor working with the student-participant.

Int; ProfA; 17-10-17; L9

A ver a mí me gusta hacer mucho este tipo de actividades (actividades grupales) porque de alguna manera se comparte primero con los compañeros los pensamientos o de pronto las percepciones acerca de la lectura, o el contenido de la lectura entonces ya es mucho más fácil pasar a socializar con todo el grupo.

It is inferred that the professor found the strategy useful since she allowed oral interaction between the blind student and his partners to share ideas and make contributions among them. It is important to emphasize that one of the purposes of the group strategy, which is to allow the blind student to share ideas, opinions, and thoughts of topics studied with his partners, is repeated in the samples above; thus, it is interpreted that the sharing is the core purpose of the strategy. Furthermore, it can be inferred that the professor applied this strategy to revise content in an accessible way for the blind student using the auditory channel instead of the visual one.

Int; ProfB; 17-10-17; L252

Interviewer: ¿Nos puede hacer un recuento de las acciones que ha realizado durante todo el semestre? ¿Qué otras estrategias usted ha utilizado con el estudiante ciego que no hayamos podido observar?

Professor B: Una de ellas es la de los grupos de discusión como ejercicio de resumen del capítulo; a mí me gusta como indagar en lo que entendimos sobre el capítulo, entonces hagamos preguntas sobre el capítulo. Los dividía en grupos grandes y a cada uno se le asignaba una sección del capítulo y debían entre todos generar conclusiones sobre este. Me parece interesante porque el estudiante ciego tiene siempre muchas cosas que aportar y los compañeros siempre están como muy dispuestos a escucharlo y a tomar nota de lo que él dice; trabajamos un ejercicio que era the panel of experts donde grupos se hacían en frente y simulaban que ellos eran expertos en un tema, la audiencia debía tomar nota. Allí la idea es que se les hiciera preguntas que ellos tenían que elaborar frente al capítulo. El estudiante ciego casi siempre hacía preguntas, a veces a ellos o a veces a mí, yo trataba como direccionarlas hacia los panelistas…

Four main aspects were found in the previous sample. First, it is interpreted that this strategy is mainly developed through the oral channel as evidenced along this finding. It is also important to highlight that professors A and B agreed not only on the utilization of the strategy, but also on its purpose which is to share opinions, ideas, thoughts, and perceptions through speaking in group activities. Second, a highly important interpretation is that the professor B is surely aware of the blind student's capacities as he expressed that the student-participant was always willing to contribute in the classes. Third, it can also be inferred that the blind student's classmates are conscious of his presence, so they are willing to listen and pay attention to him without discrimination. Fourth, the activity exposed and explained by the professor allowed the researchers to interpret that there are not considerable changes made for the blind student when grouping strategy is applied; therefore, researchers also inferred that oral grouping activities are very suitable for the blind student as they are utilized regularly, and it appeared to have very good results. This final assertion can be corroborated inasmuch as the blind student did ask questions to the other groups and to the professor.

Int; Par; 21-02-18; L268

I: y de los profesores que están con nosotros en el proyecto ¿hay alguno que implementó otra estrategia o ya las mencionamos todas anteriormente?

P: el trabajo en grupo, o sea, la selección del grupo tiene mucho que ver, que los compañeros tengan experiencia previa o alguna cosa así es muy útil para el trabajo en grupo… y por ejemplo, para las presentaciones orales normalmente los estudiantes visuales se apoyan de las diapositivas. Ese tipo de auxilio a mí no me resulta útil, pero por ejemplo cuando estábamos en grupo la persona me leía el título de la diapositiva y ya con eso yo hacia la profundización del resto del contenido...

From the information provided by the student participant it can be inferred that the grouping activity strategy exposed along this finding is effective and useful. Nonetheless, the

blind student sets up some conditions for this strategy to work such as the experience his classmates should have in order to have a fluent and appropriate communication. It is also inferred that the blind student's partners are conscious of the verbalization he requires to access the information; they verbalized the title of a slide hence the blind student was able to explain and expand the information they as a group were presenting.

The information presented in the previous data samples along with their interpretation were identified in the UDL as the necessity to provide multiple means of representation; thus, it is necessary to provide options for comprehension where information does not necessarily need to be accessible, but rather information transformed into usable knowledge; knowledge that is constructed from an active process and not a passive one. (CAST, 2011, p.16)

The above information can be corroborated with the *Checkpoint 3.1 "Activate or supply background knowledge"* where it is stated that information is more accessible and likely to be assimilated by learners when it is presented in a way that primes, activates, or provides any pre-requisite knowledge.

- Anchor instruction by linking to and activating relevant prior knowledge (e.g., using visual imagery, concept anchoring, or concept mastery routines) (CAST, 2011, p.16).

This information is related to this finding inasmuch as the blind student needed to activate his background knowledge to have access to the group activities, and transform the input he received from different sources into usable knowledge to contribute and share ideas, perceptions, and thoughts in the classes.

The UDL affirms that students cannot approach learning when it is imperceptible; that is the reason why the professor A permitted the blind student revise the visual content already studied by sharing ideas, perceptions, and thoughts in grouping activities. Morrow (1999) stated that

grouping activities are indispensable for participation in the classes; and this appears to be relevant as this was evidenced in our study given the fact that the professors-participants applied this strategy to allow participation and interaction among all students, including the blind student.

5.1.3 Anticipation of material as a strategy. It was perceived through the data collected that the anticipation of materials and topics was a concurrent action by the four professor-participants in their lessons. This strategy consisted on providing the blind student with the content that will be used for the next lessons in advance. Two main means were identified by the researchers that were used by the professors to use this strategy: Virtual platforms such as email and Box Net and extra meetings.

The following paragraphs will explain in detail the events in which anticipation of material as a strategy was present. The first sample exposes a different position where professor A states that anticipating material is a strategy that she uses, but not in all the lessons. The second, third and fourth samples present evidence of extra meetings where the anticipation of material took place. Finally, the last sample reveals the effectiveness of the strategy confirmed by the blind student.

Int; ProfA;17-10-17; L17

[...]Yo me apoyo mucho en lo que desarrollan los compañeros con el estudiante ciego en la clase. Dejar de alguna manera que se siente con un compañero y tal vez sea el compañero el que le lea el material, si es que él no lo ha recibido al correo, porque a veces es así. A veces simplemente decido que la actividad se va a ejecutar en clase y es por primera vez que el estudiante se encuentra con ese contenido. Pero la mayoría de las veces primero pues que lo reciba antes y segundo que el estudiante tenga la oportunidad de desarrollarlo autónomamente. Él se sienta en su computador, abre el

documento, lo escucha y ahí si vamos a hacer la actividad, si es compartir con los compañeros, si es responder unas preguntas, si es ejecutar algo, que el estudiante lo pueda hacer [...]

In this excerpt it can be interpreted two main aspects: the purpose of using the strategy and the fact that anticipating material is not always carried out.

To start with, the main purpose of anticipating material is to provide the blind student with autonomy while he is developing different tasks and activities. It means that regardless of the activity proposed by the professor, the student is able to accomplish it. It can be understood that if the blind student is already familiarized and exposed to the material, there are not barriers to achieve an active participation during the lessons.

In the second instance, it is identified that professor A not always anticipated the material to the blind student. It can be inferred that this professor considers that this strategy is important but not the only one to make the blind student an active participant in the class. The fact that the not all the material in made available to the student, does not seem to be problematic in the classes since it is corroborated that the professor fulfills the blind student's specific necessities with other strategies such the support that the other members of the class can provide; this specific action is evident at the beginning of the previous excerpt.

Int; ProfA;17-10-17; L188

[...]En ese curso yo vi la necesidad de reunirme con él una vez a la semana fuera de la clase. Entonces yo lo citaba en la oficina creo que las clases eran miércoles, jueves y viernes entonces él venía el lunes y yo compartía con él los temas, el material, todo lo que íbamos a hacer durante la semana, inclusive algunas veces las tareas cuando yo veía que iban a ser muy complejas para que él las desarrollara en clase[...]

In this data sample it can be interpreted that arranging external meetings is the channel that this professor adopted to achieve the strategy of anticipating material. Professor A used external meetings with three main purposes: to share topics, materials, and to anticipate activities that could be complex to the student. All the aspects mentioned, allowed the effective blind student's participation in the classes.

Int; ProfD; 26-10-17; L46

[...] yo sí desde el principio le he enviado los materiales, él dice que una semana antes y ayer tuvimos esa discusión. Yo planeo todos los viernes para toda la semana, pero el fin de semana califico y si me doy cuenta que los estudiantes tienen dificultades con un ensayo en particular yo tengo que modificar esa planeación. Entonces yo no se la puedo enviar a usted los viernes, sino que se la mando el lunes o el martes y la clase es el miércoles; él dice que no es suficiente para prepararse, y entonces yo le digo es que yo las clases las modifico dependiendo de lo que los estudiantes necesiten. [...] ayer nos sentamos a hablar, y entonces acordamos que de ahora en adelante nos vamos a reunir los jueves a las 9 de la mañana para aclarar dudas, para aclarar feedback, para aclarar materiales[...]

In this data sample, different aspects can be interpreted. To start with, it is evident that there was a conflict between planning the lessons and anticipating the material. It allows us to understand that the strategy of anticipating material could be a little bit complicated in classes where written language production is the core of the lessons. It as well evidences that subsequent classes are planned based on the results of written tasks given every week, which means that the focus of each class may or may not go as established in the micro curriculum. It is crucial to mention, however, that arranging external meetings was an excellent complement to improve the strategy of anticipating material since it was the channel in which the professor could clarify doubts, give feedback, and anticipate materials.

Int; ProfC; 17-10-17; L59

[...]I mean, the strategies are not very sophisticated, but they involved first of all making sure that he gets the materials, so I have some files in what is called Box Net and he has the code for those… In Box Net the materials are arranged more systematically than in schoology. Whenever is something that students have to read, I send it to his email directly. On Thursdays, we have a meeting of an hour; it's kind of a mini class. I usually go over all of the things a little bit, and he has the chance to ask questions about anything that maybe he doesn't understand; I tell him what we will be doing in the next class [...]

Three main aspects were found in this excerpt: There was preparation of the lessons in advance, the teacher possessed the awareness of the blind student's specific necessities, and he used a complementary strategy to accomplish the anticipation of material.

To begin with, it is evident that the professor C prepared his lessons in advance since he was able to keep the student informed in time about the readings and the materials they were using in future lessons. It can be confirmed when the professor states that whenever there was a reading, he sent it to the student's email.

Additionally, it is imperative to mention that professor C was aware of the blind student's specific necessities in regards to accessing the material autonomously into two aspects. The first one has to do with sending the reading texts with enough time, so that the student has the chance to check the material before the actual class, and the second has to do with sending the text in a format which is accessible to the student. It can be demonstrated when the professor C made the material that he was anticipating available by the use of tools, in this particular case Box Net and email, where the information can be systematically organized and where the student can use the screen reader JAWS to access easily.

Finally, Professor C complemented the strategy of anticipating material by arranging extra meetings to clarify doubts and to inform the student of the development of the next class.

Int; Par; 21-02-18; L98

[...]esta estrategia fue muy funcional sobre todo con el profesor C porque es extremadamente organizado con eso. Entonces por ejemplo cuando yo tenía clase con él el viernes en la mañana, él el sábado en la mañana me estaba enviando el material de la próxima clase. Eso quiere decir que yo tenía toda la semana para revisarlo. El jueves antes, previo a la clase del viernes teníamos también una entrevista personal extra clase donde él resolvía todas mis inquietudes acerca de la lectura. [...] con B, en el tercer semestre no, pero en el pasado sí porque ya teníamos normalizado el tema. Habíamos hablado mucho de esa necesidad específica mía; y con la profesora D al principio de semestre hubo problemas, pero ella normalizó el tema después [...]

According to the blind student's data sample, anticipation of material as a strategy has to be developed under certain circumstances. One of them is that the information that is being anticipated needs to be organized, and is more effective when it is anticipated with enough time for the student to explore the material. Additionally, professors must be aware that anticipating material is a specific need that has to be covered in the blind student's process. It is also understood that although sometimes the application of this strategy could be complicated, it is through the dialogue where agreements that favor the professor and the student can be reached. Finally, the blind student confirmed explicitly that the strategy is effective and necessary in his learning process.

The information above exposed could be related with two studies covered in the literature review section. In the study conducted by Nwacoye (2007), it can be evidenced how teachers change their techniques to include and implement strategies to teach to blind students even though there was not a clear understanding of what inclusive education was. A similar situation

occurred in this case study, where four professors, without guidance, made adaptations in their methodologies to anticipate the material and to have extra meetings with the purpose of including the blind student in their lessons. Additionally, Nwacoye's study and this case study coincide in the fact that the individualization is a key aspect to attempt inclusive education.

On the other hand, Morrow (1999) highlighted the importance of providing the students types of adaptive technology for reading and writing; aspect that is evidenced in this study in the interview carried out with professor C, where he expressed that he anticipated the material through a system able to present the information in an organized and accessible way for the blind student. Additionally, Morrow's study and this study concur that covering the prerequisites of the blind students demands 3 key aspects: additional changes in the curriculum, time investment, and lesson planning preparation. That is the reason why it is a strategy that requires training and the most important: disposition.

5.1.4 Adaptation of material as a strategy. From the analysis of the data collected, it was identified that the four professors-participants were continuously working on the demands that having a blind student in their classes implied. In this finding, the adaptation of material to provide the students different ways to welcome the activities to be developed was evidenced in two different situations: For developing quizzes and for developing partial exams. These situations in turn present specific purposes such as contextualizing and providing the blind student with content and information.

As a support of the information aforesaid, three samples will be provided containing relevant information in relation with adaptation of material as strategy in the two specific situations mentioned before (quizzes and partial exams). The first sample exposes a technological adaptation made by professor B for the blind student to solve a quiz. The second

sample emphasizes in an adjustment made by professor C to allow the student to present a partial exam appropriately. The last sample presents the opinion of the blind student towards the implementation of this strategy regarding the adaptations. This information can be validated with the following fragments of observations and interviews.

Obs1; Prof B; 03-10-17; C4

The last part of the class is the development of a quiz. The professor gives everybody a piece of paper but the blind student is doing the quiz in the computer. The observer asks the professor how the participant is developing the quiz and he answers that he adapted it to him so in a different format, he listens to the questions. There are open questions and multiple choice.

Int; ProfC; 17-10-17; L74

In the exams I write the exams in a different format, for example, you all know that I use a lot of matching in the exams. Ok matching is more complicated than multiple choice because you have to look at all of the different terms, so in his case it will be too much to try to read all of those names and then be able to answer so I make them into multiple choice or I give him four options.

Regarding the two samples above taken in which the principal authors are the professors A and B; it can be inferred that these professors were completely aware about providing suitable and appropriate input to the blind student. Due to this awareness, the professors were able to create different strategies to provide the student with diverse valid options while presenting quizzes and partial exams during the classes. This pedagogical situation can be illustrated with the action in which matching exercises were replaced for multiple choice and open questions items; by implementing this adjustment, the professors demonstrate their level of awareness towards the items that do not benefit the student for receiving content and additionally, it is observed how they implement an accessible format taking into account the student's disability. It

can also be inferred that the intention was to allow the student to use other referents rather than the visual to achieve the goals of the assessments and activities proposed.

In addition, it is important to mention that for the professor B to make the technological adjustment of the quiz for being used in a computer, he needed to be familiarized beforehand with the especial software used by the student participant. It allowed us to infer that from the lesson planning, the professors do research about the student's necessities to cover it in a wider range. At this point, it is noticed how some of the strategies mentioned in this project are correlated to assure a better acknowledgement by the student; as it is the case of the external meetings to get to know the specific requirements that the professors need to work on by taking into consideration the student's suggestions. The above strategy can be corroborated by the student's opinion in which he expresses the importance of using different ways of providing input during the assessments by the professors.

Int; Par; 21-02-18; L287

Por ejemplo, para nosotros nos ponen un ejercicio de un match con diez elementos para unir, usted pone el 1 con el 4 y este con este y usted tiene la oportunidad de revisar. Nosotros no tenemos esa posibilidad, entonces yo le había dicho tanto al profesor B como al C que, si teníamos una actividad de match en los parciales, no me juntaran 10 con 10, ¿cierto? Sino que la primera pregunta con 3 o 4 opciones de respuesta ya uno mira cuál escoge. También en los formatos, que hicieran un formato especial que el lector pueda leer, por ejemplo, si usted le pone la fuente en otro color que es muy útil para el visual, o algo subrayado no lo lee el lector. Entonces ellos me ponían la pregunta como por ejemplo: los colores de la bandera son: a.. b… c.. y abajo me ponía: su respuesta es… entonces yo ya me podía guiar muy fácilmente.

The interview with the blind student provided this finding with essential information.

First of all, it corroborates that the professors did adapt some material especially in regards of assessments for the accessible use to the student. Second, annexing the two samples before mentioned, it evidenced how the professors took into consideration the student's request and needs for making the adjustments specially to fit the student's disability. For example, by changing the “matching” items of a test for “multiple choice” items, and by adapting the reading material to a format suitable for the screen reader usually used (JAWS).

In order to support the adaptation of material as a strategy implemented by the professors in their assessment materials, CAST (2011) in the checkpoint 1.1 suggests to make modifications to the materials presented in order to cover the learning needs.

- Display information in a flexible format so that the following perceptual features can be varied: The size of text, images, graphs, tables, or other visual content; and the layout of visual or other elements (CAST, 2011, p.13)

The theory above presented fits properly with the actions taken by the professors at the moment of adapting the partial exams and quizzes for the student in a format that allows him to receive the input presented without the interference of external factors such as not well designed items.

To contrast two different contexts in which similar projects were carried out, in the study carried out by Morrow (1999) adaptations of material are also mentioned. However, these adaptations are not related with the context in which this project was carried out since according to the Morrow’s descriptions the blind students in the United States count with professional teachers called “vision teachers” who are trained for knowing how to act in every academic situation in response to the requirements of the blind students. Additionally, the blind students count also with technological devices which allow them to transcribe the input into the braille

language. It is important to highlight that the blind student of this project is not a braille user; and that the use of those technological devices as well as the vision teachers are not an available for the blind student in the context in which this research took place.

Although the professors implemented different strategies for the student to receive the input in a proper way, they also allowed the blind student to have a certain degree of autonomy while performing tasks, quizzes and activities in general.

5.2 Ways in which the student expresses his knowledge

The second finding of this research is related to specific actions implemented by the professors-participants regarding the way in which the student is permitted to express his knowledge in different activities. In this section, three strategies will be found such as providing different ways of doing tasks, using the student's tools, and giving more time.

5.2.1 Providing different ways of doing tasks as a strategy. After breaking down the data gathered, it is evident how one professor participant provided several ways of expression to the blind student in order for him to fulfill with the demands of the course. This strategy is mainly based on providing the student with different ways of doing tasks such oral presentations, infographics, and conceptual maps; and on checking the student´s capacities of performance after receiving input.

As a support of the ideas above presented, three excerpts containing evidence of the strategy will be displayed. The first and second samples demonstrate how the professor A supplies the blind student to freely choose the way in which he can present tasks without limiting him to a specific format, and the last sample is the argument of the blind student in which he corroborates the actions taken by the professor A regarding this strategy. The following fragments taken from interviews will endorse the aforesaid information.

Int; ProfA;17-10-17; L214

Es también incentivar las maneras de expresión, yo por eso a él le digo haga, simplemente haga. Si el a mí por ejemplo me envía un audio en lugar de un escrito en una tarea yo se lo reviso porque es otra manera de expresión. No hay limitaciones. Diferentes formas en las que él pueda expresar el conocimiento. No restringirlo a algo que es completamente visual. [...] solamente es ciego por cosas de la vida. Pero sus capacidades cognitivas están completamente intactas.

Int; ProfA;17-10-17; L214

Yo cuando asignaba las tareas siempre le decía "yo no le voy a decir haga esto o haga lo otro. Mire a ver usted qué tarea puede desarrollar o quiere desarrollar para llegar al mismo objetivo". Entonces por ejemplo el concept map que trabajamos sobre el bilingüismo, los tipos de bilingüismo. Yo le dije a él "si usted quiere escribir la misma información en un párrafo hágalo que no hay ningún problema. Si usted quiere hacer una representación hágalo" [...] Para la tercera tarea que era una infografía, yo le dije "tiene libertad de hacer lo que usted quiera hacer". Me pasó otra vez con la monitora la infografía como tal, pero entonces cuando yo la recogí él me dijo, "profesora mire lo que hice" y me pasó un archivo con su escrito de todo lo que había encontrado y el contenido que ellos pusieron en la infografía, entonces me dijo ¿Se la mando? Y yo le dije: claro, esto también es otra manera de expresión, es una manera de expresión que al estudiante se le hace fácil.

These two fragments of interviews from the professor A reveals two relevant and pedagogical aspects that the professor A is aware of: Fostering the autonomy in the performance of the student, and keeping the objectives of the tasks the student presents. Referring to the first aspect, it is evident how the professor A tries to involve the blind student in the learning process by providing him with a degree of autonomy in regards to the presentation of tasks and by not limiting him to formats that are not design for people with no visual referents. It can be

exemplified when the teacher says to the student “yo no le voy a decir haga esto o haga lo otro. Mire a ver usted qué tarea puede desarrollar o quiere desarrollar para llegar al mismo objetivo*”*. Additionally, it is interesting how the professor allows the student to participate in the process by allowing him to check for the possibilities that best fit with the way he feels works better.

Regarding the second aspect, it is inferred that even though the professor is aware of the capacities of the blind student and authorized him to perform in the way he feels more comfortable, the learning objectives to achieve were kept the same for every student including him; the adaptation was directed to how the student could develop the task proposed in order to reach the objectives established without modifying them. In addition, there is some responsibility that is given to the student in choosing the most suitable way of knowledge expression and in reaching the objectives set by the professor. After knowing the perspective of the professor A, it is also important to check the student's perspective about this strategy.

Int; Par; 21-02-18; L184

... Con la profesora A sí me tocó hacer modificaciones, ella me daba la oportunidad de cambiar por ejemplo los mapas conceptuales a otra herramienta o a veces trabajar en grupo. Entonces ahí si los compañeros me ayudaban con la parte gráfica. Por ejemplo, con ella trabajé; hicimos un trabajo y, incluso lo presentamos en Braille y Large print simultáneamente. … y quedó muy bueno.

This opinion from the Blind student effectively corroborates the job made the professor when allow him to perform with different styles. It corroborate the information interpreted from the professor A’s interview. In addition, it can be inferred that the fact of allowing the student to participate in his own learning process, provide him with motivation for presenting the task in an elaborated way. On the other hand, from the blind student's words “ella me daba la oportunidad

de cambiar por ejemplo los mapas conceptuales a otra herramienta o a veces trabajar en grupo" It can be inferred that not all the professors applied this strategy with the pupil.

The strategy providing different ways of doing tasks is took into consideration by Cast (2011) in the Checkpoint 4.1 when proposes that it is mandatory to provide the student with a variety of ways for replying; and to guarantee a balance in the learning opportunities for all pupils. It means that by the fact of providing a student with an alternative suitable to its requirements, it does not mean that certain advantages are being granted over the rest of the learners.

- Provide alternatives in the requirements for rate, timing, speed, and range of motor action required to interact with instructional materials, physical manipulatives, and technologies
- Provide alternatives for physically responding or indicating selections (CAST, 20111, p.20)

It is also evident when the same author proposes that as every attempt to education is composed by purposes, it is important to allow the students a certain degree of independence to determine the ways in which they feel they can better reach those goals. In this way, the learners will be more conscious and interested in their learning process. However, the level of autonomy and the appropriate options presented for them to choose are required in order for the students to be engaged and to accomplish the objectives.

- Allow learners to participate in the design of classroom activities and academic tasks

- Involve learners, where and whenever possible, in setting their own personal academic and behavioral goals (CAST, 2011, p. 25)

Even though the student can adapt the tasks according to their abilities, it is necessary to highlight that this is a strategy guided by the professors since they are the ones who are providing the student with the opportunity of making modifications to the way in which he can better present his tasks.

5.2.2 Using student's tools as a strategy. From the analysis made to the data collected, it was corroborated that the use of the blind student's tools was a crucial aspect to gather, identify and measure the student performance during the lessons. This strategy consisted on using the blind student's computer as a channel for him to develop quizzes mostly.

In the next paragraphs it will be found crucial information where the strategy of using the student's tool is evidenced. The first and second samples expose how professor B and C used the student's computer to develop quizzes.

Obs1; ProfB; 03-10-17; C4

"The last part of the class is the development of a quiz. The professor gives everybody a piece of paper but the blind student is doing the quiz in the computer. The observer asks the professor how the student is developing the quiz and the professor answers that he adapted it to him in a different format, the student listen to the questions and there are open questions and multiple choice questions."

Int; ProfC; 17-10-17; L85

Professor C: [...] In the exams what I do is I actually… I give him the file or I send it to him, [...] I ask him to erase the exam as soon as he's finished, so he has the exam in his computer, he can hear what has been read. I think on the computer he has the way of doing marking the answers [...]

In these data samples, two main aspects could be identified: there was a recognition of the tools that the blind student used, and there was a comprehension about the circumstances required for the blind student to use his tools in an appropriate way.

To start with, it can be interpreted that the professors B and C recognized the tools that the blind student was familiar with. The fact that both professors took advantage of the computer to gather information about the blind student's performance in quizzes can be corroborated when professor B states that all the students were developing the quiz in a piece of sheet while the blind student was working on his computer and when professor C states that the blind student has the way of doing the quizzes using his computer autonomously.

Moreover, it can be identified that professors B and C understood the circumstances that the blind student required to accomplish the objectives of the lessons because of two main reasons. First, both professors were aware of the necessity of adapting the quiz format in a suitable way for the blind student to complete it on his computer. This can be corroborated not only when the professors explain that they adapted the format, but also when they chose type of questions (multiple choice questions) that allow the student to express his knowledge in an accurate way. Second, the professors B and C were aware of the blind technological abilities. It can be confirmed when the professors used the blind student's computer to display the questions of the quiz in an auditory way and to provide possibilities for answering and expressing what he knew.

As a support of the information above identified, it is important to take into account the principles exposed by CAST in the Universal Design for Learning (UDL).

To start with, in the checkpoint 4.1 *"Vary the methods for response and navigation"*, the author states that it is important to provide to the students different channels for response, selection and

composition. As all learners interact different with the information and activities, equal opportunities should be guarantee.

- Provide alternatives in the requirements for rate, timing, speed, and range of motor action required to interact with instructional materials, physical manipulatives, and technologies.

Additionally, the UDL suggested in the checkpoint 5.2 *"Use multiple tools for construction and composition"* that curricula should give the opportunity for the students to use tools and alternatives that help them to achieve a full participation in the classroom. It means that learners should use tools that correspond to their abilities and the demands of the activities.

- Provide Text-To-Speech software (voice recognition), human dictation, recording
- Provide Computer-Aided-Design (CAD), music notation (writing) software, or mathematical notation software. (CAST, 2011, p.22)

The suggestions provided by the UDL are in the same line with the actions developed by the professors during their lessons at the moment of using the student's computer to develop quizzes. The fact that Professors B and C provided non-visual alternatives can be evidenced when they created quizzes with auditory, accessible and familiar formats for the blind student.

5.2.3 Giving more time as a strategy. From the analysis of the data collected, it was found that the professors-participants gave more time to the blind student at the moment of carrying out specific tasks. Thus, the strategy of giving more time was made with two main purposes: The first one is related to the performance of the blind student in partial exams, and the second has to do with the delivery of assignments, especially writing tasks.

Throughout the coming paragraphs compelling evidence of the strategy above mentioned will be found. The first sample presents how professor B applied this strategy by asking the blind student to arrive first, earlier than his classmates, to the classroom in order to carry out the listening part of the partial exam. The second data sample presents the strategy where professor D gave more time to the student-participant with two purposes: First, the professor allowed the student to process feedback related to writing tasks; second, the professor gave extra time to the student to deliver assignments.

Int; Prof B; 17-10-17; L110

"Hoy tuvimos el parcial, a él lo cité más temprano. El parcial empezaba a las 7:30 y a él lo cite a las 7:10 porque hay una sección de listening, en esta sección, eran 4 conversaciones en la que ellos tenían que identificar cual era la relación entre los speakers y cuál era el speech act […] Entonces "en conversation one" what is the relationship and what is the speech act y le edité los audios. Era conversation one y un mp3, entonces lo podía repetir, otra carpeta y conversation two para que él no tuviera que escucharlos todos y ahí sí responder, escuchaba uno y respondía, escuchaba otro y respondía"

From this sample the researchers identified three main aspects. First of all, it can be interpreted that the professor is aware of the extra time the blind student needs to present the listening section of partial exams. Secondly, it is inferred that the professor B agreed with the blind student to meet earlier, before everyone else arrived, because he adapted the partial exam for the student, so he was aware that the student needed more time to develop it. Finally, it is interpreted that this strategy was implemented because the student does not have the visual referent; therefore he needs more time to develop tasks.

Int; Prof D; 26-10-17; L14 - 22

[…] él dice que para él trabajar en la clase así, con el feedback tan encima que le es muy difícil, que porque él necesita más tiempo para procesar la información y para poder sentarse a escribir […] ya ayer tuvimos una discusión de que él necesita es que el feedback se lo envié y que él tenga tiempo de procesarlo y hacerme preguntas vía e-mail para que cuando llegue a la clase ya lo tenga terminado.

Interviewer: *¿pero fue tratado igual que todos los estudiantes, el feedback se le dio todos los estudiantes ese día y todos tenían que hacer la actividad ese día?*

Interviewed: *a todos, lo único es que yo a él le di más tiempo para entregarlo."*

Regarding this data sample, it was interpreted that the professor is aware that the blind student does not have the visual referent. For this reason, the professor knew that it was very difficult for the blind student to keep on track with the writing assignments, so she gave him more time with two main purposes: First, the professor allowed the student to revise and process the feedback by giving him extra time; second, the professor provided the blind student with more time to deliver the assignments.

It is important to highlight that in the following interview the researchers asked the blind student about the fact that some professors gave him more time to develop tasks. Researchers also mentioned in the interview the action took by professor B when he decided to meet the blind student in the classroom before the rest of the students.

Int; Par; 21-02-18; L195 - 209

Interviewed: *"sí porque él hace por ejemplo listening o speaking, lo hacía por subgrupos. Entonces antes de que todo el mundo entrara hacíamos esa parte del listening y de speaking y después yo hacía con el grupo el resto.*

Interviewer: *¿y esta estrategia le funcionaba?*

Interviewed: *Sí, el extra time… De hecho es necesario no solo el extra time sino que normalmente es fuera del salón por la interferencia del canal auditivo."*

In this final excerpt it is corroborated by the student-participant that this strategy of giving more time to develop tasks is successful. In addition, this data sample allowed the researchers to infer that the extra time given to the blind student by the professors did help him on his performance in the listening and speaking sections of partial exams.

The information presented in the previous data samples along with their interpretation were identified in the study conducted by Morrow (1999) where one student-participant, Siobhan, stated that *"Just being open-minded as a teacher to the situation and being willing to give extra time to the special needs student is really important,"* (Morrow, 1999, p. 135). This assertion allowed the researchers to support the strategy made by the professor of giving more time to the student in terms of performance and delivery of assignments. Additionally, Gordon (2000, cited by Nwacoye, 2007) alludes to a curriculum referred as Outcomes-based-Education (OBE) which contains several items. Among those items, there is one that states the following: *"Consolidate a lot, in various ways, until all learners understand the concepts or have acquired the skill, and make time to go back to tasks to discuss and learn from their own and other's experiences and learning methods"*. (Nwacoye, 2007, p. 26). This item can be related to the second sample where the professor gave more time to the blind student to process the feedback and therefore learn from his own work.

6. Research and Pedagogical Implications

The following paragraphs will depict the implications that surrounded the process of seeking strategies to teach a blind student in a bilingual teacher-training program at a public University in Pereira. In addition, the studies that could emerge from this research project will be presented as well as the pedagogical implications.

This research was a qualitative case study applied at Universidad Tecnológica de Pereira where a blind student was involved in regular classes in the bilingual program of the institution. Throughout the study, the researchers sought for teaching strategies applied by four professors who were teaching to the student at the moment the research took place. The information was gathered by the researchers through a data collection instrument called stimulated recall which contained observations, memos, and interviews as techniques. Consequently, this research project guided us through different learning stages that helped us to recognize different aspects. First, we became aware about the lack of information, studies, and actions about teaching a blind student in a bilingual context. Second, we realized that in spite of the existence of general policies for the inclusion of people with disabilities in the educational system, there is still lack of bilingual policies and laws in Colombia for teaching people with visual disabilities. Next, we learned the importance of selecting relevant research data and of conducting an objective analysis of it, of designing appropriate data collection instruments, and of organizing the information gathered systematically.

After the analysis of the data collected, it was found that different strategies were implemented to assure the blind student access to different information and to express his knowledge as well. To start with, the necessity for the blind student to access the information

along with the no limitation of bringing visual material to the classroom, unchained a series of teaching strategies which permitted that the student received the input given. By implementing the verbalization, explanation and contextualization of visual material as a strategy, the blind student was contextualized with the actions that were taking place at different moments of the lessons and the visual material that was being presented. With the use of grouping activity as strategy the blind student was able to share opinions, make contributions, cooperate in group work, and socialize according to the topics of each lesson. By the use of anticipation of material as strategy, the student was provided with the content of the coming lessons through two main means: virtual platforms and extra meetings; for that reason, the blind student was able to process the information with enough time before the class. Lastly, with the adaptation of material as strategy the student-participant was capable to present quizzes and partial exams since the formats were adapted in an accessible way taking into account the student's requirements.

On the other hand, three strategies allowed the student to express himself in different ways. By providing different ways of doing tasks as a strategy, the participant was allowed to develop classroom activities such as oral presentations, info-graphics, and conceptual maps by providing him with a degree of autonomy on choosing the way in which he could perform better. With the use of the student's tools as strategy, the participant was able to use familiar tools as his computer to develop quizzes. The last strategy regarding the output consisted on giving more time to the blind student for checking his performance on partial exams, as well as extra time to deliver assignments.

From the analysis of the methodology, the data, and the results obtained, it is convenient to conduct further research about three aspects. The first one deals with the necessity of doing extensive study of bilingual subjects that have different profiles since the blind student of this

project had very punctual characteristics: He was not born blind, he is a late bilingual, he has limited proficiency in braille, and he has limited skills using the keyboard of a computer. Consequently, the results could not be applied extensively to other cases, but they can serve as a model and be adapted to other profiles.

There are some strategies that have transversal applicability. One of them is verbalization, explanation, and contextualization as a strategy as it is an essential action that should be implemented in classrooms where blind people is enrolled since the auditory channel appears as the main mean of communication. Additionally, group activity as a strategy plays an important role since it evidences how the professors can use alternative options as taking advantage of the visual partners to allow the blind students to be active participants during the lessons. For example, in grouping tasks the partners can verbalize the visual content and also contextualize the student about what is happening in the class. In this way, the rest of the class can support the professors' role by diminishing their participation, as well as by creating a sense of awareness about the requirements to approach a blind person among the classroom. Finally, giving more time can be considered as a strategy to be adapted to other profiles; because as blind people do not have the visual referent, they need more time to develop different activities such as developing partial exams, quizzes and tasks, and reading documents.

Second, there is a need to do research in this field to publish a general strategy manual that could be implemented in different scenarios with blind population. This assertion demands the creation of a document that contains specific examples of strategies to be applied to the blind population. Such document should also have advices for the applicability of the strategies given the fact that few university programs train teachers on how to design and implement lessons with blind students. In addition, having a manual as the one above described can impact positively the

students, professors, and directives of schools and universities by understanding the requirements that the blind population has and also by having available sources to know which strategies to implement and how.

Third, as the strategies found in this research were merely related with content subjects guided in the second language, there has to exist a compilation of strategies used specifically with subjects that are taught in the mother tongue, and subjects where learning of a second language is the core. This necessity emerged since there could be huge differences at the moment of creating and implementing the strategies in these two contexts.

Regarding the pedagogical implications, three important aspects will be discussed: professors' training, adaptation sensibility, and communication skills. Regarding the professors' training, there is little intervention by the Colombian government to supply this necessity; hence, it is evident that professors lacked of guidance in the process of teaching people with visual disabilities in bilingual contexts where two languages coexist among them. In addition, there is not any document or guide in which professors can support their teaching; for this reason, they have to train themselves and implement strategies in a trial and error process to fulfill the requirements that having a blind student implies. Last but not least, there is not enough research in regards to the training that professors from all fields need to plan and conduct classes to the population with visual disabilities.

In relation to the adaptation sensibility, it is essential to highlight that it has to exist a high degree of flexibility on the way the teaching process is conducted. This flexibility on adaptations is intended to approach all the educational requirements that having a person with a visual disability demands, as well as to guarantee his/her social inclusion during the daily academic

activities by creating a sense of awareness towards the differences among the visual classmates. Besides that, this pliability mentioned above has to be applied to all pedagogical stages (from the curriculum designs, passing through the lesson planning, until the implementation phase), and to all educational community including the administrators, professors, students, and the family in order to assure and optimal achievement.

It is important to clarify that general adaptations can be applicable, but they have to be adapted to the particular blind student depending on his/her context and specific situation. One of the most common adaptation done is to start using the auditory channel as a mean to replace the visual one; in this sense, the professors do not have to limit themselves to the use of visual material but to take advantage out of it.

In regards to the communication skills, the professors have to build solid communication abilities in relation to two main actors: the blind student himself and professors' colleagues. To start with, the professors need to keep constant communication with the blind person to continuously determine the strategies that are effective and make necessary adaptations if they are not useful. It is important to take into account that the student can provide essential information about his/her needs, requirements, and the ways that are more suitable for him/her to develop different activities.

In addition to keeping solid communication with the blind student, it was noticed how some professors of this research were supporting each other with strategies, experiences, material and advices to achieve the different goals of their lessons. It can be noticed how the aspects above discussed are correlated among them; for instance, the fact that professors did not have training forced them to find sources in other scenarios. That is the reason why they appealed to

the constant communication with the blind student and the constant peer-coaching with their colleagues.

Lastly, it is important to mention the impact that this project will have on pre-service teachers, professors, and managers of the program Licenciatura en Bilingüismo con Énfasis en Inglés and on the blind students and administrators of the university regarding inclusive education.

As the professors do not have any training in teaching blind people at educational contexts, this project provides a set of strategies that could guide pre-service teachers, professors and managers of the academic programs at the University in the requirements that a blind student has in all classrooms. It is recommended that the strategies found in this study, serve as the starting point for learning processes of blind students making the necessary adaptations regarding the profile of the students and the contextual needs.

7. Limitations

Due to the constant reflective analysis of this research project, it was found out four main situations that had an impact on the study: There is not a general applicability of the findings, there was lack of prior research on the field, there was a dependency on the researchers and participants' schedules, there was a limitation regarding the data collection methods and data analysis, and finally there was not a total accomplishment of a research sub-question.

Concerning the further applicability of the findings among other blind students, it cannot be generalized since it is a case study and the student participant has particular characteristics as mentioned in the methodology section. Additionally, the lack of research, theory, materials and strategies about teaching blind students in a bilingual program was challenging for the researchers at the moment of theoretically supporting this project. Furthermore, some inconvenient were found at the moment of collecting the information since the researchers and participants' schedule was limited. That is the reason why the implementation of the observations had to be distributed among the researchers depending on their availability.

In a different line of thoughts, the researchers discovered that the way in which the data was gathered inhabited somehow the analysis of the results because although the formats were changed several times to fit with the objectives of the project, at the moment of analyzing the information the researchers realized that there were information gaps in relation to the questions made to the participants (professors and the blind student). There were also gaps at the moment of implementing the observations since researchers did not describe in detail what was happening during the lessons. The issues mentioned above happen mainly because of the researchers' inexperience about data collection instruments and its analysis.

Finally, the research sub question regarding the perceptions of the professors and the blind student towards the strategies used with the blind student was not totally covered during the data collection stage. The blind student's perceptions toward the strategies were explicitly gathered in the interview. However, due to researchers' inexperience, the question that asked for perceptions was not included in the professors' interviews, but it could be noticed how some of the professors expressed unconsciously their perceptions to the implementation of the strategies they used.

8. Conclusions

In the seeking for teaching strategies that include a blind student in a bilingual program, it was of high importance to achieve this objective by determining and describing the strategies used by four professors-participants. As a result of the research process, the findings were classified into two sections: Ways to present material and content to the blind student in the classroom, and ways in which the student expresses his knowledge. It was also concluded that the research question and sub questions, along with the objectives of the project were aligned to what was found in the results.

This research project appeared because of the latent necessity that the blind population requires in the educational field. Indeed, more reasons were found to develop this research project as the researchers stumbled upon the poor literature and policies. Although this research was done with a student with very specific characteristics, it provided seven detailed strategies that contain crucial information about how to make the blind student an active participant of the class through groping activities, how to provide an appropriate access to the information by anticipating and adapting material, how to let the student express his knowledge in a suitable way and using the tools that are familiar for him, and finally how to be fair with the student according to their abilities by giving him more time to develop tasks. The strategies above mentioned cannot be applied literally in other studies, but they can be adapted according to the context and specific necessities.

In relation with the data analysis, it was concluded that the professors-participants implemented, without guidance, different strategies during the lessons that allowed the blind student's participation, access to information, and expression. It is important to mention that

although the professors were not aware about the document Universal Design for Learning, the strategies that they implemented were aligned with the principles presented in the document created by CAST (2011).

This project can be supported by authors mention in the theoretical framework section such as CAST (2011) when it proposed three different guidelines integrating principles and checkpoints, and quite important, examples for application. These guidelines are: Provide Multiple Means of Representation, Multiple Means of Action and Expression, and Multiple Means of Engagement. The importance of this study to our research was evidenced as it provided authority to the strategies implemented by the professors in this study. Further, Nwacoye (2007) reinforced our project by evidencing how the professors-participants of his project and the four professors of this project, changed their teaching techniques to include and implement strategies to teach to blind students even though there was not a clear understanding of what inclusive education was. On the other hand, Morrow (1999) differs from this study due to the context and the opportunities provided to the blind population. The participants in her study had the possibility to have resources such as vision teachers (expert teachers who deal with blind population) and technological tools which facilitated the access to braille language, differently to blind student of this project.

To conclude, the following paragraphs will depict how the general and specific objectives stated were accomplished and developed. Regarding the first specific objective: *"To identify the effectiveness of different inclusive strategies, if there are any, used by the four professors of the program during the classes regarding the blind student"*, there were found seven teaching strategies implemented by the four professors-participants: Verbalization, explanation, and contextualization of visual material as a strategy, Grouping activity as a strategy, Anticipation of

material as a strategy, Adaptation of material as a strategy, Providing different ways of doing tasks as a strategy, Using student's tools as a strategy, and Giving more time as a strategy. These strategies were obtained through observations and interviews with all the participants that provided essential information to build the results. It is important to mention that they were determined, analyzed and described in detail. Additionally, the effectiveness of the strategies was proved due to the blind student testimony and classroom observations.

Referencing the second specific objective: *"To report the different perceptions that four professors and the blind student have towards the implementation of the strategies used in classes"*, it can be noticed that it was partially covered since only the perception of the blind student were directly asked and answered in the interview. Due to the researchers' inexperience, the professors' perceptions could not be reported as this question was not included explicitly in the professors' interviews. However, some of the professors expressed in the interviews their affinity with the strategies used.

In relation to the third specific objective: *"To report the impact that the implementation of inclusive strategies have on pre-service teachers, professors and managers of the program Licenciatura en Bilingüismo con Énfasis en Inglés, and on the blind students and administrators of the university"*, it is important to clarify that although this research project has not been published to date (13/06/18) and people have not had the opportunity to explore it, some professors of the Licenciatura en Bilingüismo con Énfasis en Inglés program have demonstrated their interest in this project and have expressed how important it will be for future implementations.

It can be evidenced how these specific objectives are aligned to the general objective which is *"To determine, analyze, and describe the strategies, if there are any, that four*

professors of the Licenciatura en Bilingüismo con Énfasis en Inglés at Universidad Tecnológica de Pereira implement with the blind student who is currently in 6th semester" since all of them were accomplished. It can be corroborated because the blind student could, during the professors' implementations, receive the information and express his knowledge in a proper way.

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